THIS WEEK'S National Petroleum NEWS

Coming Meetings

American Institute of Mining and Metallurgical Engineers, Petroleum Division, Houston, Tex., Oct. 2, 3.

Society of Automotive Engineers, Book-Cadillac Hotel, Detroit, Mich., Oct. 7, 8.

Mid-Continent Road Oil Congress, Tulsa Okla., Oct. 8, 9.

National Safety Council, Hotel Stevens, Chicago, Oct. 12 to 16.

National Association of Credit Men, Petroleum Refiners Division, The Elms Hotel, Excelsior Springs, Mo., Oct. 22, 23, 24.

Big Four State Jobbers Association (Nebraska, Iowa, Kansas and Missouri), Hotel President, Kansas City, Mo., Oct. 27, 28, 29.

Virginia Oil Men's Association, and Virginia Sub-Committee Code of Ethics, Patrick Henry Hotel, Roanoke, Va., Oct. 29, 30.

American Petroleum Institute annual meeting, Stevens Hotel, Chicago, Nov. 10, 11, 12.

Third International Conference on Bituminous Coal, at Carnegie Institute of Technology, Schenley Park, Pittsburgh, Pa., Nov. 16 to 21.

Indiana Petroleum Association, Hotel Severin, Indianapolis, Ind., Dec. 2, 3.

Nebraska Petroleum Marketers, Inc., Hotel Paxton, Omaha, Neb., Dec. 9, 10, 11.

Geological Society of America, Mayo Hotel, Tulsa, Dec. 28 to 31.

National Petroleum News

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R. E. DONOVAN, safety engineer for the Standard Oil Co. of California, is a pioneer in accident prevention work in the petroleum industry. While with the U. S. Bureau of Mines he gave the bureau's initial first aid course to our industry.

He has been active in the petroleum division of the National Safety Council and was successful in his campaign last year to have the American Petroleum Institute set up an accident prevention department. He is now chairman of the Accident Prevention Committee of the marketing division of the institute and chairman of the Advisory Committee of the Accident Prevention Department.

Mr. Donovan also is chairman of the Petroleum Section of the National Safety Council. He has been in charge of the California Standard's accident prevention work for the past nine years.

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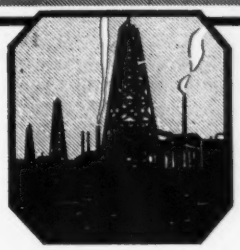

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Vol. 23 **CLEVELAND, SEPTEMBER 30, 1931** **No. 39**

Increasing Pressure to Restrict Imports Being Brought on Washington

WASHINGTON, Sept. 28 INCREASED pressure will be upon Congress and the administration this winter for an embargo or tariff on imports of crude oil and petroleum products.

The committee appointed at a conference called by oil state conservation agencies of the southwest, in Oklahoma City, Sept. 11, formally asked the assistance of the Department of Commerce in bringing about curtailment of imports at conferences here Sept. 21 and 22.

This is preliminary to a program of world proration of crude oil production which was evolved at the Oklahoma City conference.

However, it is doubtful if the coming Congress will be interested, even in an academic way, in the world program. As an active issue, however, the matter of an embargo or tariff or forced restriction of imports, will be something with which Congress will have to concern itself, whether it wishes or not.

The proponents of restricted petroleum imports have gained strength since Wirt Franklin, president of the Independent Petroleum Association of America, first took his cohorts to Washington two years ago. While failing to secure anything in the way of legislation, the representatives of the independent producers did gain considerable support in Congress and all indications are that they are not going to relax their efforts this coming winter.

Out in New Mexico, Gov. Arthur Seligman sent telegrams to the governors of Colorado, Utah, Montana, Pennsylvania and California, asking them to join with himself and the governors of Texas, Oklahoma, Louisiana, Kansas, Kentucky and Arkansas in urging President Hoover to ask Congress for authority to declare an embargo on oil imports, or to recommend a tariff on foreign crude oil.

"Since the shut-down in Oklahoma and Texas fields, foreign importations have increased, thus nullifying the stabilizing effect on the oil industry here which might have resulted from recent shut-downs," Seligman wrote the other governors.

The Oklahoma City committee put their proposal for import restrictions before Secretary of Commerce Lamont, who earlier this year interested himself in an effort to have the four principal importing companies in this country cut down on their imports of gasoline. The committee put its plea on the ground that an emergency, with distress because of unemployment, existed in the domestic oil fields and that conditions would be greatly improved by curtailing importation of oil and utilizing our own supply for domestic needs. Inasmuch as the committee called upon President Hoover, when Secretary of the Interior Wilbur was also present, it is assumed that the President was also asked to give the matter consideration.

In a letter sent Secretary Lamont two days after their conference, the committee asked

Tariff Hearing on Oil

By Telegraph

WASHINGTON, Sept. 29.—The United States Tariff Commission has announced a public hearing, Oct. 29, in its investigation of the cost of production of crude, fuel oil, gasoline and lubricating oils in the United States, and the cost of producing the same commodities in foreign countries which, in the last two years, have exported 2,000,000 barrels or more. The investigation was authorized under a resolution of the House of Representatives at the last session of Congress. Any interested party may present evidence at this hearing.

Imports of Crude Oil and Gasoline Into the U. S.

(Figures in Barrels Monthly)

	1929		1930		1931	
	Gasoline	Crude	Gasoline	Crude	Gasoline	Crude
Jan.	498,526	8,074,662	1,078,867	5,449,506	1,115,653	4,352,874
Feb.	406,447	7,015,834	952,896	4,321,009	947,988	4,788,717
March	327,058	6,790,430	1,368,658	4,827,300	1,607,487	3,714,741
April	821,832	7,827,965	1,319,441	5,780,819	1,347,575	4,162,259
May	729,223	7,551,873	1,767,546	4,984,129	1,049,588	4,512,194
June	731,655	6,590,801	1,670,374	5,766,565	964,022	3,978,381
July	933,845	6,122,358	1,740,873	5,876,946	1,527,902	3,588,448
August	791,817	5,800,045	1,827,495	5,059,427	1,244,164	2,701,512
Sept.	900,846	6,952,565	1,538,275	5,807,988	.....	.....
October	1,026,140	5,765,593	1,619,577	5,061,463	.....	.....
Nov.	984,163	4,553,942	1,078,874	4,467,188	.....	.....
December	715,829	5,886,504	963,924	4,727,079	.....	.....
Total	8,834,302	78,932,572	16,926,800	62,129,419	*9,804,379	*31,799,126

*8 months.

that oil importing companies be asked, for the remainder of 1931 and as long thereafter as the present stabilization program is enforced in the principal oil producing states in this country, to cease entirely the importation of any refined products or by-products; and that the importation of crude oil be not over 140,000 barrels daily.

The first six months of 1931, gasoline to the amount of 7,000,000 barrels has been imported and over 25,000,000 barrels of crude. In all 1930, 17,000,000 barrels of gasoline were shipped in and 62,000,000 barrels of crude, Department of Commrce reports show.

American Petroleum Institute reports show that crude oil in September was being brought in at about the rate of 100,000 barrels daily, gasoline at a rate of about 30,000 barrels daily.

In line with the program approved at the Oklahoma City conference for restricting total domestic production in this country to 2,379,000 barrels daily, about the 1928 basis of production, the committee suggested that the principal producers in Mexico and South America limit their output to a total not in excess of 531,000 barrels daily.

The committee said that, while the importing companies had indicated to the domestic producers they would curtail imports as soon as output in the United States had been restricted to meet or equal market demands, they had not done so, while domestic producers in California, Oklahoma, Kansas and Texas had held their production to less than demand, necessitating withdrawal from stocks of more than 22,000,000 barrels of oil in 1930 and of more than 20,000,000 barrels the first six months of 1931.

To its letter to Secretary Lamont the committee attached statements of three of the four principal importers covering the first eight months of 1931: Standard Oil Co. of New Jersey; Shell Union and Asiatic Petroleum Corp. (both of the Royal Dutch Shell group) and the Venezuela Gulf Oil Co. Pan American Petroleum & Transport Co., subsidiary of the Standard Oil Co. of Indiana is the fourth importer.

The committee's statement said the Standard of New Jersey imported mostly crude and a small amount of fuel oil, with no gasoline. Its total importations for 1930 were 22,025,667 barrels, and for the first six months of 1931 were 10,859,124 barrels, or at the annual rate for 1931 of 21,718,248 barrels.

"It was our understanding that, commencing in April, an effort would be made by all the importing companies to reduce imports in 1931, as compared with 1930, by at least 25 per cent," reads the committee's letter to Secretary Lamont.

The statement of imports by the Shell Union and the Asiatic Petroleum show an increase of 50 per cent in crude oil imports for eight months of this year, the total amount, however, being comparatively small. Their gasoline imports were 8,102,043 barrels in 1930 and, for the first eight months of 1931 were 3,458,350 barrels, at an annual rate which would represent a decrease in imports of gasoline of 35.9 per cent.

The statement of the Venezuela Gulf Oil Co. shows imports of crude in 1930 of 23,955,764 barrels, while imports for the first eight months of 1931 were 11,317,139 barrels, at an annual rate which would reflect a curtailment of 29.5 per cent.

The plan for a world wide proration program, to include restrictions on crude oil output in countries outside the United States, which was evolved at the Oklahoma City conference, took second place at the Washington conferences. Needed daily crude production for 1932, 1933 and 1934 under this plan was scheduled as follows by the representatives of the state conservation agencies and others who met at Oklahoma City: 1932, world 4,153,000 barrels daily average, United States 2,407,527; 1933, world, 4,372,603, United States, 2,479,543; 1934, world, 4,591,781, United States, 2,555,449.

The committee appointed at the Oklahoma City meeting to present the case of the oil states at Washington included Thurman Hill, Topeka, Kans., chairman, member of the Public Service Commission of Kansas; Fred A. Walker, Oklahoma City, chairman, Corporation Commission of Oklahoma; C. V. Terrell, chairman, Railroad Commission of Texas; W. N. Davis, president, Mid-Continent Oil & Gas Association; Wirt Franklin, president, Independent Petroleum Association of America.

Mass Meeting of Oklahoma Operators in Tulsa

By Telegraph

TULSA, Sept. 29.—A general meeting of Oklahoma oil operators is to take place tonight at the Mayo Hotel, to consider the shutdown in the Oklahoma City field, martial law, imports of crude and products into this country, and other factors in the present general situation.

The meeting was called Sept. 25 by Wirt Franklin, president of the independent operators' Independent Petroleum Association of America. Mr. Franklin has recently been in Washington as a member of the committee which has asked Secretary of Commerce Lamont to use his efforts to bring about limitations of oil imports.

THE EDITORS' VIEWPOINT

The Silent Partner Speaks

IN THE petitioning of the Kansas Public Service Commission by a group of farmers in Rice and Ellsworth counties for limited opening of an oil pool there is indication that new forces are being set in motion. For practically the first time since state commissions and boards began to regulate oil production, the man who holds basic title to the oil is asserting himself.

There are a few thousand, at least, of his numbers over the country. His influence, as a class, may be considerable in the coming issue as to whether the oil companies or governmental agencies are going to assume control and responsibility for the development of oil pools. We believe this individual, the land owner, with a proper understanding of the oil company's problems and its efforts to meet those problems, could be made a strong ally of the oil industry in this issue at stake.

It remains quite superfluous and wholly beside the point to say that the landowner, in most cases, knows nothing at all about the oil business. The same can be said of most members of state commissions. The practical consideration for us all is that the public interest in the oil business, about which we have heard so much in recent years, is beginning to be asserted and in a manner that few could foresee.

Up to five years ago the oil business took care of its own affairs. The only supervision it had from government was the federal regulation of interstate pipelines, the enforcement of certain physical waste statutes in oil producing states and, of course, the collection of taxes. What went on within the industry, what its policies were with respect to economics, exploration, development and producing practices, were matters of concern to the oil companies alone. So far as the farmer was concerned, it was considered he might be thankful if someone leased his land, drilled a well and opened an oil pool which would yield him the customary one-eighth of the oil produced and sold.

Bit by bit government, coached by the oil industry, has constructed a conservation theory. It is not complete by any means, but the chief ingredients are in place. In its elementary form, it comprised only the proportional taking of oil from a common source of supply. It has been declared by courts of competent jurisdiction to be sound policy to regulate and apportion the oil resources in a single field so as to give each operator, and hence each landowner, his due percentage of the production.

Almost any theory, however, can be elaborated and that is what is happening to this one. It is being moved from the "common pool" stage and established on a "common market" foundation. The farmers who own land in Rice and Ellsworth counties, proved to be oil bearing, are asserting that they have a right to some part of the market that exists for Kansas oil. Production has been found but the fields have been shut in. There is a pipeline to the area and a purchasing company recently prepared to take some oil. The Public Service Commission issued an order that the field should be kept off the market until further order. The landowners say that some of the purchasing power in Kansas oil fields should be transferred to their area. It is not a great step in the future for them to attempt some voice as to the price that should be secured for the oil taken from their land.

Our memories need be taxed but slightly to see the great change that has been made. But a few years ago an operator drilled when and where he pleased, produced as he saw fit, discharging only such responsibilities as he had assumed under the lease contract which he signed with the farmer. If a neighbor operator lacked market, that was too bad, but nothing was done about it.

NOW we have the state governments holding back one operator until another catches up, states insisting upon the purchase of oil at set price and now the farmers contending for equitable division of the market as between all fields in a state.

Clearly, some formula must be invented to cover this latter question. None exists at present. Should the deciding factor be the age of pools, the distance the oil must be transported to market, the refinable value of the oil, the future recovery? If the states are going to keep their hands on the oil producing business, and we believe they are so inclined, then some program must be arrived at that will have as its basis the equities of the situation, and not merely the local sentiment that may be exerted.

It follows that the oil companies themselves, knowing most about the subject, must begin shaping such a program. Included should by all means be the landowner, now beginning to be conscious of his share in the business. It is possible that he may be more and more vocal as times goes on and he is certain to get the ear of the man in public office. Armed with the facts, he may be a force for much that is constructive.

Murray Waits for $1 Crude Oil Buyer, Okla. Fields Remain Shut In

TULSA, Sept. 26

EXCEPT for repeated assertions by Gov. Murray's oil administrator, Cicero Murray, that somebody would post a higher price for crude oil and that Oklahoma's shut in fields would be opened, the past week has been uneventful.

Some of the purchasing companies say the Murrays have gotten the cart before the horse; that the posting of a price should not be a condition precedent to the opening of the fields, but that the fields should be opened and a demonstration given that the oil producing states will really adhere to the program of production set up in the Oklahoma City meeting of Sept. 11 and formally agreed to by Texas, Oklahoma and Kansas a week later.

It is not sufficient, say some of the larger buyers, to write down the figures and treat the matter as accomplished. It must be shown that Texas will really hold to 902,000 barrels daily, Oklahoma to 546,000 and Kansas to 110,000.

Cicero Murray keeps on saying he knows the price will be advanced to a top of $1, demanded by the governor at the time he issued his order shutting in the fields. Whence comes his assurance he does not say. During the week he nominated the Stanolind Crude Oil Purchasing Co. to be the current villain in the drama, taking the role from Sinclair. He charged the Stanolind, purchasing subsidiary of the Standard Oil Co. of Indiana, with holding out against paying higher prices because of pride and unwillingness to bow to the dictates of the governor of Oklahoma.

That statement followed some published remarks attributed to R. S. Ellison, president of the Stanolind company. Mr. Ellison said he didn't see how it was possible to raise the price in the face of economic conditions. It appears, he thought he was conversing informally and had no intention of making a statement and was considerably surprised to find himself in the news columns.

The latest assertion of Cicero Murray is that the higher price will be with us early next week and the fields will be reopened.

In the way of discussion, things were plenty lively in Oklahoma City. As has been pointed out, operators differ in opinion as to what should be done when the field is finally opened. The old question of over and under-produced wells has been a trying one ever since proration was established in 1929. It is worse now.

Previously it was a question of passing around the limited market demand in the fairest manner. Now other things enter in. One is the matter of the voluntary shut-down which occurred in July. Those who participated in this contend that the allotments due them which they did not produce should be set up as a credit. This position is opposed by those who produced their allotments in July.

Allegations of cheating on the rules make the situation more troublesome. One lawsuit has been filed by an operator who asserts another had buried flow lines and continued to produce one or more wells, even under martial law. Reports are that others are involved.

These questions were raised in what is reported to have been a stormy session of the Oklahoma City operators' committee last Wednesday, at the conclusion of which the resignation of Umpire Otto B. Bradford was announced by W. N. Stokes, chairman of the committee. Mr. Stokes represents the Slick interests.

The corporation commission refused to accept the resignation of Mr. Bradford in the manner it was handed out, saying that he was the agent of the commission and couldn't resign in that offhand fashion.

Later, the commission appointed a committee of five to check the records of the umpire against those of the state tax commission. It is not charged that the umpire has been remiss in his duties, but that he might have been given different information than that which was turned in to the state for payment of gross production taxes.

The committee consists of B. G. Patton, Plains Petroleum Co., who was named by the commission itself, and four others whose names were submitted by the operators. The four are C. O. Rison, Indian Territory Illuminating Oil Co.; J. S. Anderson, Anderson-Prichard Oil Corp.; Frank Porter, Wirt Franklin Petroleum Corp. and W. N. Stokes, Slick interests. The audit will be started at once.

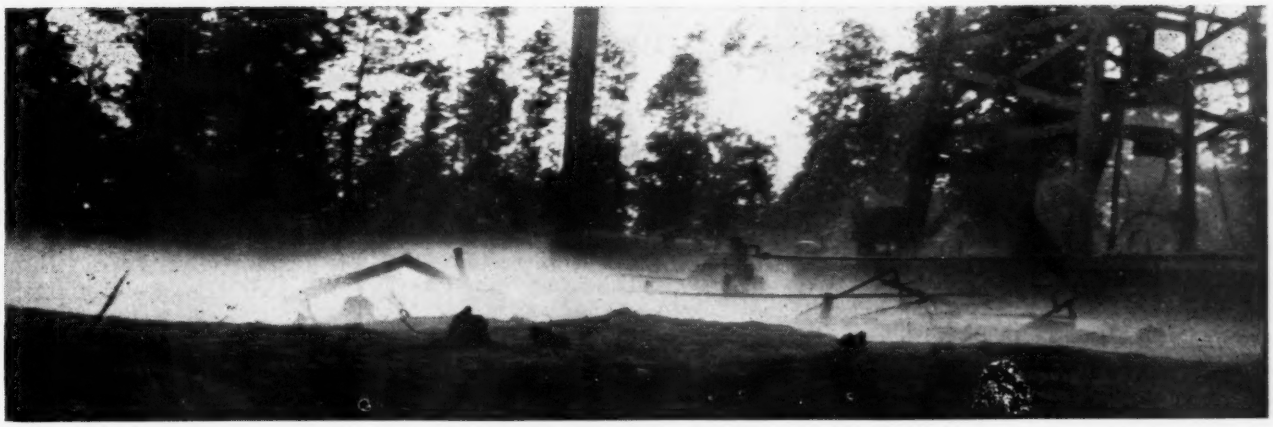
Should the Oklahoma fields be opened—and it is evident they will be before long—there will be considerable work to do before the old orderly system is re-established. It will be necessary to take a new gauge of Seminole district wells, for martial law has upset the balance that has prevailed there, what with some wells being allowed to produce and others shut in. Then, should the proration question be handed back to the corporation commission and martial law removed, a hearing will have to be held. The order under which proration was conducted expires Sept. 30.

Refiner's Son Killed In Airplane Wreck

OIL CITY, Pa., Sept. 26.—Charles W. Suhr, son of Charles L. Suhr, president of the Pennzoil Co., Oil City, Pa., was killed in an airplane accident near Kansas City Sept. 22.

He lived in Los Angeles and had been east. He missed his train at Chicago the night before to make the Western Air Express at Kansas City so chartered a small cabin plane and left Chicago early Tuesday morning. They ran into fog in crossing the Missoui river and got off their course and for some unknown reason had to make a forced landing in doing which one wing hit the ground and Mr. Suhr was thrown out.

He was 26 years old, married and leaves two children.



This photograph gives striking proof of the fire hazard in East Texas. Note the heavy vapors clinging to the ground around the well. The wooded character of the field often prevents escaping gas from being blown away. The well shown caught fire within 24 hours after the photograph was taken

Co-operative Fire Prevention Plan For East Texas Outlined

LUFKIN, Tex., Sept. 25

COOPERATION of oil companies, railroads and other interests for fire protection in East Texas was outlined at a meeting Sept. 24 and 25 of the southwestern district, division of production, of the American Petroleum Institute.

M. L. Brown, Longview, field superintendent of the Sun Oil Co., chairman of the regional committee on fire prevention fathered the idea. Within the year of oil field development in East Texas, 57 lives have been lost and great property damage resulted from oil well fires.

Cooperation is to be effected through gathering together in committees responsible representatives of operating interests, for study of fire hazards in the area and for action when emergencies develop.

Mr. Brown illustrated the plan in a paper which was read in his absence:

"Suppose a fire were to occur in a battery of tanks in the vicinity of Kilgore, which threatened the city and other oil properties. It hardly would be reasonable to expect the city, or any one company, to carry sufficient supplies or equipment in this exact locality to combat a major oil conflagration. But the superintendent of the property where the fire occurred could turn to his fire protection handbook and call for equipment and supplies of other companies in that area.

"If more equipment were needed it could be called through authorized individuals in adjacent districts. Railroad companies could be called on for equipment or to move property out of the threatened area. Police authorities would co-operate by excluding other than authorized workers from the fire area, thereby lessening the possibility of fatalities should a boilover occur and the fire spread. They would also clear the roads for movement of equipment."

To avoid unnecessary calls for assistance, it was agreed that all expenses incident to such co-operative work be borne by the company calling for assistance on the basis of actual cost.

Mr. Brown pointed out that the East Texas field produces a crude oil which gives off an exceedingly flammable vapor. Natural gas is produced with the oil at the rate of approximately 350 cubic feet of gas to the barrel of oil. A mixture of five to 15 per cent of natural gas with air constitutes a highly flammable mixture. Other petroleum vapors mixed with air in the proportion of one per cent to six per cent constitute a flammable mixture. Therefore, said Mr. Brown's paper, with a combination of the vapors coming from the wells or flow tanks in East Texas a fire may start anywhere where one to 15 per cent of the vapors are mixed with the air.

Vapors coming from the tanks hang close to the earth and may travel some distance to a source of ignition.

The problem confronting the East Texas operators in fire prevention is one of confining or disposing of these vapors and preventing their contact with sources of ignition.

E. Stanley Durward, central division chief mechanical engineer of the Shell Petroleum Corp., Dallas, described the method of extinguishing the Bell & Graddy fire, near Kilgore, last June.

Papers on correct and incorrect drilling practices in East Texas were read by Blaine Johnston, production vice president of Simms Oil Co., Dallas, and Charles W. Alcorn, a central division production executive of the Shell Petroleum Corp.

A paper on arc welding practice and results, prepared by J. C. Lincoln, chairman of the board of directors of the Lincoln Electric Co., Cleveland, was read by C. K. Rickel of the Big Three Welding & Equipment Co., Fort Worth.

Edward E. Dillman, of the Wyatt Metal & Boiler Works, Dallas, dealt with the welding of oil field storage tanks.

W. C. Trout, president of Lufkin Foundry & Machine Co., oil well equipment manufacturers, provided luncheon for the visitors Thursday and conducted them through his extensive plant.

Proration and Pipeline Rates Before Texas Commission

By Telegraph

AUSTIN, TEXAS, Sept. 28

OIL men are assembling here for three scheduled days of hearings before the Texas Railroad Commission, the state's oil conservation agency and its pipeline rate board.

Although two days were planned for the hearing on pipeline rates provided for in the amended common purchaser pipeline bill passed by the special oil session of the legislature a few weeks ago, this hearing has been postponed indefinitely. This was after C. K. Walsh, representing the North Texas Oil & Gas Association and individual members, had filed a bill of exceptions with the commission.

The commission's hearing on pipeline rules and regulations was also postponed because these matters are intimately associated with rate questions.

The intervenors pleaded in their bill of exceptions that the fixing of pipeline rates, as proposed in the commission's notice, would be discriminatory, without that body's taking into consideration the aggregate value of pipeline properties, and reasonable allowance for depreciation and operation expenses. They said the commission was attempting to fix rates without hearing the evidence as prescribed by law.

Oil company lawyers say the new pipeline statute makes it mandatory on the commission to evaluate pipeline properties, deal with depreciation and obsolescence, determine fair earnings and then fix rates accordingly, which will require months of work.

Sept. 30, the commission was to hold hearings on the proration of oil fields in the state, except East Texas and the Panhandle. Its Panhandle hearing is scheduled for Amarillo, Oct. 3. The East Texas hearing was held early in September and held open for such modifications as appeared necessary to deal with the Gregg, Upshur, Rusk and Smith county field, from time to time.

In the past few days East Texas production was reduced to 375,000 barrels per day, a cut of some 55,000 barrels daily average. This cut resulted from the recent order of the commission reducing allowable output per well from 225 to 185 barrels per day. There are now 2051 wells completed in the district which produced an average of about 430,000 barrels per day in the week ended Sept. 23.

Hearings under the old Texas conservation law included all fields through co-operation of Central Proration Committee. The Sept. 30 hearings call for taking up districts individually. Under the physical waste law passed by the emergency session of the legislature, Texas proration may be based only in individual fields or districts.

Voluntary proration has been continued in Texas fields generally since the new law became effective the middle of August; no hearing being held for application of the emergency statute except as applied to East Texas.

Under the new pipeline law the commission is required to hold hearings and reset rates, if found necessary, for gathering, transporting, loading and delivering crude by all common carriers on all existing and operating lines in Texas; also rates for storage as applied to companies engaging in storage for hire.

The commission must hold a hearing and grant a permit before a pipeline can abandon any connection; and it is required to order common carriers to extend their lines where deemed necessary to "public interest," and to prevent discrimination.

Attorney General Allred has declined to pass on the constitutionality of the new law, which is questioned in many quarters. Whether its constitutionality will be taken to the courts for decision depends largely upon the extent to which its application by the commission is found satisfactory.

Texas Geologist Dead

HOUSTON, Sept. 25.—H. P. Attwater, 77, widely known Texas geologist and retired industrial agent of the Southern Pacific railroad, died Sept. 25 at his Houston home. Mr. Attwater recently planned an expedition into the Big Bend country of West Texas to prove his theory that one of the most primitive civilizations in the world once existed in that region. Death, however, cut short his program.

Indiana Standard Buys Gulf Coast Site

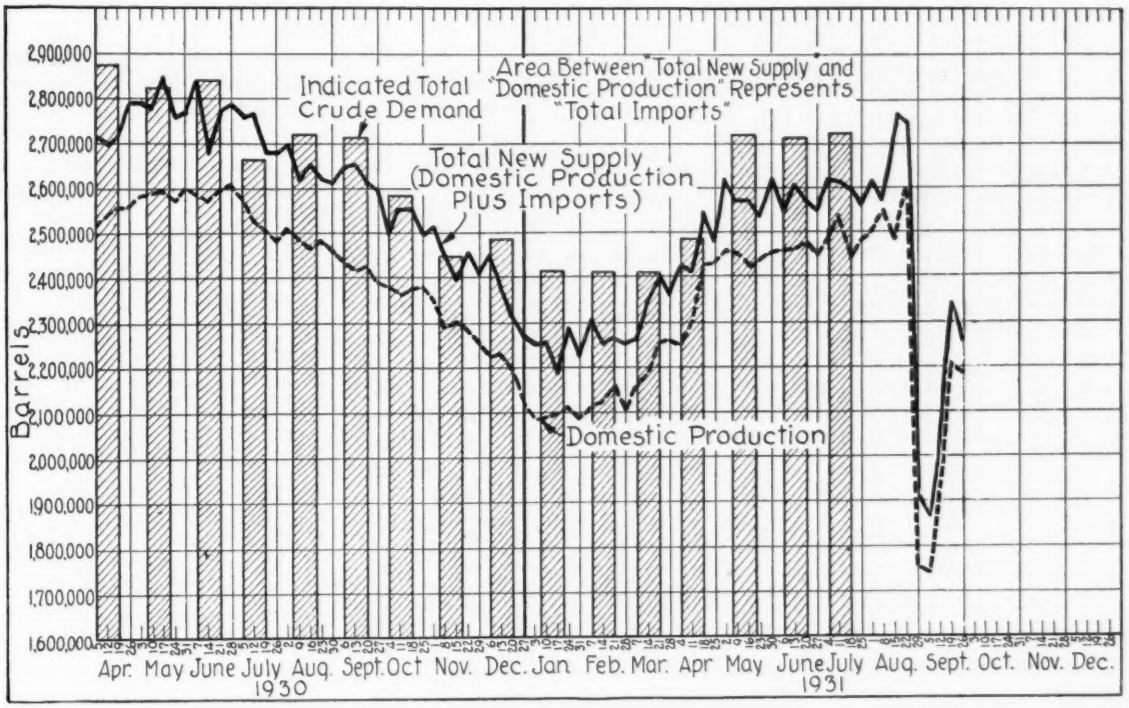
HOUSTON, Sept. 25.—An indication that the Standard Oil Co. of Indiana may contemplate construction of a refinery on the Houston ship channel is seen in the announcement that its stock-controlled subsidiary, Pan American Petroleum & Transport Co., has purchased a 270-acre tract near Texas City, and acquired pineline right-of-way to the adjacent waterfront.

Standard of Indiana, through its direct-controlled Stanolind Pipe Line Co., already owns a pipeline connecting with its Mid-Continent and North Texas system, which extends to Huffsmith, 35 miles from Houston. The pipeline is the one jointly owned with the Sinclair interests until approximately a year ago, when the Standard acquired the full interest in the system previously known as the Sinclair Pipe Line Co., affiliated with the old Sinclair Crude Oil Purchasing Co.

Stanolind Oil & Gas Co., direct producing subsidiary of the Standard of Indiana, owns extensive properties throughout Texas and recently took over operation of the Southern Crude Oil Purchasing Co. properties in West Texas. Southern Crude Oil Purchasing Co. is a subsidiary of the stock-controlled Pan American.

Rumors of Texas refinery construction by the Indiana Standard, either in its own name or that of a subsidiary, have been current in the southwest for several months, but lacked confirmation. An official of Pan American recently denied that the company has any immediate plans for building on the site.

Review of Late Production News



This chart shows crude oil supply according to the American Petroleum Institute reports (solid line) in relation to indicated crude oil demand as taken from the Bureau of Mines monthly reports (shaded columns).

CRUDE oil production in the United States showed little change in the week ended Sept. 26, according to reports gathered by the American Petroleum Institute. The average for the week was 2,193,350 barrels per day, a drop of 8250 barrels daily average.

Imports averaged 65,285 barrels per day bringing total new supply to 2,258,635 barrels.

Indicated consumption of crude stood well above this figure. Institute reports covering 95 per cent of the refining capacity of the country showed crude runs to stills at 2,355,600 barrels per day.

East Texas

In East Texas production has been cut to about 375,000 barrels per day from 2051 producing wells. This is a reduction of approximately 55,000 barrels daily average from the 429,250-barrel average reported by the Institute for the week ended Sept. 23. The reduction resulted from the order of the Texas Railroad Commission cutting well allowables from 225 to 185 barrels daily.

During the past week field storage accumulation in East Texas amounted to 54,888 barrels per day, trunk pipelines moved 331,180 barrels per day from the field, tank cars handled 10,957 barrels daily and local refineries ran 33,047 barrels per day.

American Petroleum Institute reports covering refinery operations for the week ended Sept. 26 are on Page 85 in this issue.

California

California production was cut 11,300 barrels daily average to 500,600 barrels per day. Little important news developed from drilling operations in the state. The wildcat test of Petroleum Securities Co. on the middle dome of Kettleman Hills is not coming up to expectations, scouts report. The well now is drilling below 8100 feet in sandstone and hard shale. It will be carried lower before a production test is made of some likely looking oil sand cored at higher levels.

On the north dome of Kettleman Hills, Standard Oil Co. and The Kettleman North Dome Association (Kenda) are preparing to drill tests to define the field's production limits. On the southeasterly flank, Standard will drill on Sec. 23, 22-18. The location is midway between the edge of the area now considered proven and the edge of the area considered possibly productive.

Daily Average Production, Important Districts, American Petroleum Institute Figures

(By Telegraph)

	Week Ended Sept. 26 Barrels	Sept. 19 Barrels
Okla. City	8,400	4,300
Oklahoma	264,300	258,450
East Texas	429,250	419,400
Total Texas	1,019,750	1,019,550
California	500,600	511,900
East of Rockies	1,692,750	1,689,700
Total U. S.	2,193,350	2,201,600

Oklahoma

Oklahoma production still stays below 265,000 barrels per day but rumors are more current that the military lid is to be lifted soon. Restlessness continues to grow among producers unable to operate their properties and charges of violations of proration orders are growing.

Kettleman Hills Operators Seek Higher Gas Allowable

LOS ANGELES, Sept. 24

KETTLEMAN HILLS, Cal., producers were to seek a more liberal gas production allowance from North Dome wells Sept. 28. Modification was to be sought of the injunction issued last May, under the state law, which limited gas production to not more than 10,000 cubic feet per barrel oil.

Modification of the injunction is sought because of a greater need for gas during the coming winter months.

In 1929 the then new California gas conservation law was looked on as a means of limiting crude output but it failed in that respect. At Santa Fe Springs producers nullified the law by extended litigation. Although Santa Fe Springs has ceased to be a menace one appeal by the Wilshire Oil Co. still is pending and will be heard by the U. S. Supreme Court this fall. State courts refused to apply the law at Long Beach on grounds that waste was not proved.

When the north dome of Kettleman Hills loomed as a menace this year the law again was invoked. Gas/oil ratios were around 45,000 to one, indicating a clear need for application of the law so an injunction was obtained.

But again the law failed to be effective as a crude production curb. Producers drilled their wells to the deep zone and were able to produce them with gas/oil ratios as low as 1000 to 3000 cubic feet per barrel of oil.

Under orders from the court, Kenda (the North Dome Cooperative association producers) recently killed two high gas/oil ratio wells under its jurisdiction, the discovery project—Milham Exploration Co.'s Elliott 1, and an offset, Elliott 12-8, drilled by Continental Oil Co. Two other wells in this discovery group that were also bottomed in the upper, high-gravity gas zone, are owned by Standard. Their combined rate of production is 142,000,000 cubic feet of gas and 3500 barrels of oil per day, giving a gas-oil ratio of about 40,000 to one barrel of oil. The problem of killing these two wells will be gone into by the state attorneys at the meeting next week.

James S. Bennett, representing the state in its case against the Kettleman operators, has indicated he will ask the superior court to set an allowable of 300 million cubic feet per day for the North Dome field. This amount of gas he estimates is required to supply essential demands on the area. By essential is meant domestic, commercial, field, and some industrial consumption, but it excludes those industrial plants equipped to burn fuel oil in place of natural gas.

Gas production on the North Dome is now about 324 million cubic feet per day, about 22 million feet less than in August. With all wells bottomed in the upper zone killed or shut in, the low gas-oil ratio wells could not produce more than 200 million cubic feet per day without flooding the market with oil.

It is believed the state will approve a modification to allow a gas output of 300 million cubic feet. However, some interested oil companies have large amounts of fuel oil in storage and may oppose any plan that tends to increase the gas output operators holding the majority of the gas contracts may take from their properties.

Dry gas blown into the air on the North Dome during August totaled 1,203,502,000 cubic feet, a decline of 675,000,000 cubic feet under the waste in July. Total wet gas delivered to gas plants in August was 3,796,765,000 cubic feet, as compared to 3,800,400,000 cubic feet in the month before.

Total gas production for the area in August amounted to 10,750,878,000 cubic feet, as against 11,466,848,000 cubic feet in July. Of the August total, Standard contributed 5,170,455,000, Kenda, 3,843,483,000, and seven wells controlled by companies not operating under the unit plan of development contributed 1,736,940,000 cubic feet.

Dry gas delivered to Pacific Gas and Electric Co. in August totaled 1,563,453,000 cubic feet as compared to 1,098,270,000 cubic feet in July. Deliveries to the Southern California Gas Co. in August amounted to 920,969,000 cubic feet, as against 424,114,000 cubic feet in July.

A 26-inch gas line being built by Southern Fuel Co. in conjunction with the Southern California Edison Co., from Kettleman Hills to Long Beach, will pull on the area's gas reserve. This line may be supplied also by dry gas from the Buttonwillow field developed by the Milham Exploration Co. Milham recently completed a gasser in this area and proved up a second dry-gas producing horizon that may come in handy if the Kettleman Hills gas production is curtailed.

Engineers are working on the problem of gas production and gas-oil ratios for flowing wells in the Ventura Avenue field. Depletion of gas reserves in the Los Angeles Basin fields threatens a shortage for the coming winter and it is expected Ventura Avenue will have to be flowed at nearly its full capacity of 130 million cubic feet daily to meet peak consumption in southern California.

Approximately 10 million cubic feet of dry gas is being supplied the Southern California Gas Co. by General Petroleum Corp. from its More Ranch wells near Goleta and a like amount would be available at Elwood, where operators are blowing their excess gas into the air.

Ralph M. Weaver Killed

HOUSTON, Sept. 25.—Ralph M. Weaver Jr., president of the Falcon Oil Co., Fort Worth, and a geologist by training, was crushed to death in his overturned car the morning of Sept. 25 at Fort Worth. He had lived in Fort Worth about five years and was widely known. He was a graduate of the Colorado School of Mines, had formerly operated in Oklahoma and was a native of Pennsylvania.

Unit Operation is Proposed For New Canadian Field

TORONTO, Sept. 26

THE Turner Valley oil and gas field, in Alberta Province, with 85 wells, where about 56,000,000 cubic feet of natural gas a day has been wasted after having its natural gasoline content extracted, is to be operated as a unit, in the interest of saving this loss and conserving the resources of the district.

A committee of engineers which has been studying a more efficient method of developing the field for some months recommended a voluntary agreement among the various companies involved. The agreement will require the approval of the Government of Alberta and the Board of Public Utilities Commissioners.

Some 40 companies are involved, 27 being independent operators in the field and 14 others directly or indirectly controlled by the Imperial Oil Ltd. The Canadian Western Natural Gas, Light, Heat and Power Co. is also a party to the agreement.

The Turner Valley wells have been operated mainly for the natural gasoline which can be extracted from this gas, the gas residue being burned. Engineers estimate that, during the life of the field so far, the aggregate loss of gas has been between 230,000,000,000 and 260,000,000,000 cubic feet. Only relatively small quantities of the gas have been turned into the lines for the supply of Calgary consumers and those in other cities and towns in western Alberta.

The proposed policy under the agreement is to reduce the gas production of the field to not more than 100,000,000 cubic feet per day, from about 12 of the present 85 wells which will provide the greatest posible natural gasoline recovery from the gas. Revenue from the wells selected for operation will be divided among the companies party to the voluntary operating agreement on an equitable basis. Some of the Turner Valley gas will produce a barrel of natural gasoline to 20,000 cubic feet of gas.

The board of engineers which worked out the unit operating method included Frank P. Fisher, consulting engineer, Mount Vernon, O., representing the Alberta Province government; Stanley J. Davies, representing the independent operators, and R. O. Armstrong, field manager for Imperial Oil Ltd.

Pennsylvania Refiners Make Final Protest Against Rate Increase

WASHINGTON, Sept. 26

IN A final protest to the Interstate Commerce Commission and the railroads today against the proposed 15 per cent increase in freight rates, Willis Crane, National Petroleum Association counsel, called attention to the fact that the 22 Appalachian refiners who appeared before the rate regulating commission on Aug. 14 were under condemnation to bear a 10 per cent increase when new class rates go into effect, Dec. 3 in the territory east of the Mississippi and north of the Ohio and Potomac Rivers.

They can stand no increase in costs of any sort, Mr. Crane said. They will be forced, if the increase is allowed, to think of new ways to get their product to market, by tank trucks, pipelines or water, as a matter of self-defense. The rates to become operative in December, according to the language of the commission, will be maximum reasonable rates.

Effect of the proposals on rates from Butler, Oil City and Bradford, Pa., as representative points, were given to the commission by Mr. Crane. He showed that the increases to 310 points would be more than 15 per cent, to 233 points more than 20 per cent and to 168 points more than 25 per cent. He found two points to which rates would be cut.

These proposed increases come at a time when refined oil prices are at a disastrously low level. In June, Mr. Crane said, wholesale gasoline prices at Pennsylvania gasoline were only 23.4 per cent of the 1917 price, 19.2 per cent of the 1920 price, and only 25.9 per cent of the 1921 price.

Using 1913 tank wagon prices as 100, Mr. Crane showed that gasoline in 1930 had an index number of 75. In this year the fluctuations have been as follows: January 68, February 67, March 57, April 50, May 47, June 50, and July 53.

In addition to that Mr. Crane also showed index numbers reflecting recent wholesale prices of petroleum products and other commodities as reported in the Department of Labor statistics. As a basis of comparison, the average prices for 1926 were taken as the base or 100. On that basis, the June, 1931, index figures for "all commodities" and for the ten principal groups, petroleum products are shown as so low that they would have to look up to see over a curb stone. The index figures follow:

	Price Index
All commodities	70.0
Farm products	65.4
Foods	72.4
Hides and leather products	65.5
Textile products	65.4
Fuel and lighting	58.1
Metals and metal products	87.4
Building materials	77.5
Chemicals and drugs	77.9
House furnishing goods	88.6
Miscellaneous	61.8
Petroleum Products	30.7

Doherty Buys Newspaper to Present His Case to the Public

A KANSAS City newspaper campaign, billed as a fight for lower gas rates in Kansas, resulted in Henry L. Doherty, head of Cities Service properties, openly buying an interest in a competing journal and presenting his side of the story under his publishing title of contributing editor.

Aside from the local issues of the fight, Mr. Doherty's action is being watched closely by business men and publishers as the procedure is unusual in the efforts of business to present its case to the public.

The issues, as usual in such cases, are not mutual. The Kansas City Star, an old time newspaper once considered one of the country's prominent journals, claims its campaign is for lower gas rates in Kansas.

Mr. Doherty claims the Star is trying to continue its reign of terror among public officials and the public, that it colors its news, indulges in slanderous lies, and seeks to throw his companies into receivership and oust them from the state.

Official notice of the campaign has been taken by the state, at the instigation of the Star, Mr. Doherty claims, through the securities department barring the sale of Cities Service stock, excepting one issue, in Kansas on the grounds it does not have sufficient financial backing. This order has been set aside.

Early last July Mr. Doherty took his first action against the Star by starting a libel suit for $12,000,000. The case probably will come up next month.

> In connection with the accompanying editorial, to refresh the mind of the reader as to what has happened in Kansas City, leading to Henry L. Doherty's libel suit for $12,000,000 damages against the Kansas City Star —probably the largest amount ever asked in damages against a newspaper— the accompanying chronology of events is given.

Later Mr. Doherty wrote trustees of the Nelson estate that present publishers of the Star were injuring the journal, and that this was an important consideration, since the Star is valued in the millions of dollars, yet its physical assets are about half a million, and the balance is represented by the intangible good will.

The Star was brought to full flower by Nelson, and the present publishers purchased it from the Nelson estate, hence this procedure of Mr. Doherty's in writing the trustees, as the purchase contract has not been completed.

Purchase of an interest in the competing Kansas City Journal-Post was formally announced Aug. 7, after trustees of the Nelson estate had not answered Mr. Doherty's letter.

Terms of the purchase were published in full, except the amounts of money, in the Journal-Post. Mr. Doherty purchased a 50 per cent interest, 10 per cent of which will not have voting power. The old management continues to operate the paper with full sway over its policies.

Mr. Doherty has the privilege of presenting his views, uncensored, under his name. He carries the title of contributing editor. Mr. Doherty also has the privilege of purchasing space, at the same rate as the most favored advertiser.

In announcing the terms of the purchase, Mr. Doherty's letter to the Nelson estate, showing why publishers of the Star were abusing their property, was published in full in the Journal-Post.

Mr. Doherty's first presentation of his views in the Journal-Post after the purchase of his interest, was in a two-page spread, with large type and black face type for emphasis.

Henry Doherty's Fight in Kansas City

By Warren C Platt, Editor

WE ARE watching with the keenest interest the fight Henry L. Doherty is making through his partly-owned newspaper at Kansas City against the attacks of the Kansas City Star and the governor of Kansas on his public utilities. Mr. Doherty is trying to do something that we believe the business men of the country should have attempted in an intelligent manner years ago—that is to make the newspapers of the country quit acting in a capacity of prejudiced, ex parte judges of all that pertains to business.

Much of the public relations troubles of the oil industry have been due to this failure of the newspapers to be really intelligent and fair. Our problems of government and unemployment of today—particularly those involving the farmer, "power trust," etc., etc.—are more the result of ignorant newspaper material and prejudice of editors than any other one cause.

The writer says this as a publisher and former newspaper man of many years. When he first came into the business paper field he firmly believed in the absolute accuracy of the newspapers, their freedom from prejudice and their great effort to do justice to all concerned. Business critics of the newspapers threw him into the same holy rage that seizes any newspaper man today.

But an increasing knowledge of business and

business problems—none too great now by any means—finally convinced the writer that he had been wrong;that, while newspaper men might have wonderful educations in the academic sense, what they did not know about business, even the simplest of businesses, would fill most of the university buildings in the world.

I realize that the foregoing will infuriate the average newspaper man but any group of fair minded men will find that it is true. Just one illustration.

The newspaper world is the only business of its size that I know of that is doing practically nothing to educate its men to the increasingly complex problems of the world today, and this is a world of business. One or two newspapers have done some educating of their staffs but most of them do nothing. The newspaper world refuses to realize that it requires much greater knowledge of a far more technical nature today to understand most any business activity than it did 50 or 75 years ago when business was represented by a few yards of calico on the merchant's shelves and a couple of bushels of potatoes on the sidewalk in front.

One more illustration if we may: We, as publishers of this oil paper, found out years ago, after a number of sad experiences and some of them rather expensive for our readers, that we cannot afford to take chances on having a newspaper man without oil or business experience get and write a story for us on anything pertaining to the oil industry. We have yet to find one who can get even the simplest thing right.

This is due to their ignorance of business subjects and that ignorance is due to their employers not realizing this ignorance and spending the few dollars necessary to correct it. It is this ignorance that makes it possible for such political fanatics as the Blaines, Lafollettes, Brookharts, Nyes et al to strut before the public in high places with their falsehoods and fancy economic theories. Straighter thinking and writing in newspapers, dating back to ten years ago, we think would have made it impossible to create a Farm Board that would try to sweep back the ocean of wheat with a broom.

Now what Henry Doherty is doing, as we see it, is attacking this problem of newspaper ignorance and the resulting prejudice. While Mr. Doherty's method is unusual and at first rather shocking, nevertheless we are now of the opinion that he is absolutely right in his method. Whether he uses just the right words and says just the right things is another matter. Henry L. heaves a lot of brick bats and cobble stones when he gets into a fight and it is quite possible that he may break a few innocent heads, get banged up a bit himself in return, and altogether present a spectacle that may somewhat horrify the silk hatted gentry on Wall Street. But then it wouldn't be Henry's fight if he had to wear a plug hat and keep it intact throughout.

However, we do think Mr. Doherty is attacking one of the gravest problems before the country today, that is the faulty and unfair distribution to the reading public of what information concerns our economic and political problems. Every man should aid him whether the man sits at the head of Wall Street or sells toothpaste and pop at a corner drug store.

It will take vigor and intensity and perhaps even violent language to get the public aroused on this question, and to awaken the owners and heads of the business offices of the newspapers to what has been going on in their editorial offices for years. The more vigorous the attack the sooner the answer should come.

We cannot get excited about the wails of the newspapers over Mr. Doherty's entry into their field and the manner of it. The wailing is being written by the very men who by their lack of knowledge, are unable to observe what industry is today. Some of them, we doubt, can even read an ordinary every day balance sheet.

Alabama Refinery to be On Stream Dec. 15

TULSA, Sept. 24.—Contract has been let for construction of a refinery on Blakeley Island, near Mobile, Ala., by the Coastal Petroleum Corp., it was announced today by Victor H. Smith, president and treasurer of the company. The plant is to be on stream by Dec. 15.

Complete turnkey job was let to the J. P. Devine Manufacturing Co., Mount Vernon, Ill., which is affiliated with the Automotive Distillation Corp. This company controls the Pratt vapor phase process. The refinery will be combination skimming and cracking with 5700 barrels daily capacity.

The Coastal Petroleum is a new company, incorporated under the laws of Alabama. C. C. Hand, a Mobile attorney, is secretary.

The plant will be built on an 80-acre site on the island. A car ferry is being built to move rail loads to mainland. The channel along the island will permit large tank steamers to come direct to docks at the refinery, as there is more than 30 feet of water.

Crude oil will be moved from the East Texas district by pipeline either to Beaumont or Texas City and from there by water to the refinery, Mr. Smith said. The pipeline rate is 25 cents and the charge for the water shipment to the refinery will be about eight cents.

About 200,000 barrels storage will be built at the plant immediately. Mr. Smith said that contract had not been let on this, but would be within a few days. The plant adjoins the fuel oil depot of the U. S. Shipping Board.

An inducement to the location of the plant was the waiving of all taxes by the city and the county for a period of 15 years.

The plant will be electrically operated, Mr. Smith said.

Refined products will be marketed chiefly in the southeastern territory.

Mr. Smith, one of the founders of the Lion Oil & Refining Co., El Dorado, Ark., was for the past few years the president of the White Oak Refining Co., with refinery at Allen, Okla., and several other companies including the Gulf States Refining Co., Oklahoma City. He terminated those connections this summer.

Credit Methods Survey Report To Be Given at Annual Meeting

TULSA, Sept. 26

A REPORT of the committee appointed to make a survey of terms and discounts for the sale of petroleum products will be one of the high lights of the convention of the Petroleum Division, National Association of Credit Men, to be held at the Elms Hotel, Excelsior Springs, Mo., Oct. 22, 23 and 24.

The committee, composed of C. E. Votrain, Barnsdall Oil Corp., Tulsa, chairman and central member; L. C. Lyon, eastern member, and A. A. Hock, western member, have sent out more than a hundred questionnaires, and the replies received will be consolidated in the report to be made at the meeting.

Among the items covered in the questionnaire were: Net terms (time of payment); cash discount, agricultural accounts, and various methods of selling gasolines, kerosines, lubricating oils, and gas and fuel oils.

Mr. Votrain, who also is president of the association, said recently that the replies to these questionnaires revealed some interesting phases of credit operations, and he believed that from a study of the report some of the present day evils in connection with unwise credit practice could be eliminated.

The tentative program this year will deal more with the credit departments and the credit managers, and less stress will be placed on personal problems. The viewpoint of the oil company's sales department will be given by one speaker. The management's viewpoint will be given in another paper. Topics chosen for discussion include:

"Credit Department Organization and Its Relation to the Sales Department."

"Effect of the Present Business Depression on Credit Problems."

"Industry's Obligation to Protect Worthy Customers from Illegitimate Competition."

"Qualifications of a Credit Manager and His Responsibilities."

"Making Management Credit Conscious."

"The Credit Department's Place in the Business Organization."

"The Credit Department's Relation to the Sales Department."

"Handling the Failing Debtor."

"Effect of Credit Department's Efforts on Net Profits from Sales."

The association also will discuss a Code of Ethics for the credit departments.

Hydrogenation on Coal Conference Program

CLEVELAND, Sept. 29.—The Third International Conference on Bituminous Coal will hear papers by more than 100 eminent scientists and technologists in the coal and allied industries, at its meeting at Carnegie Institute of Technology, Pittsburgh, Nov. 16 to 21, 1931. Dr. Thomas S. Baker, president of Carnegie Tech, has announced the tentative program, divided into 12 major sections covering the various phases of the industry.

The most important part of the program from the oil man's point of view is that pertaining to the hydrogenation, liquefaction, and gasification of coal and bituminous materials. Drs. Fried. Bergius, Hans Tropsch, Dr. A. W. Nash of England, and a large number of other technologists of international repute are scheduled to present papers on subjects on which they are engaged. Dr. Nash will discuss the synthesis of lubricants from coal and oil; Dr. Gustav Egloff and Alfred Fisher will disclose the results of some experimental work on the gasification of coal and oils in conjunction with cracking operations.

More than 17 countries are represented in the conference, and it is expected, according to the sponsors of the meeting that more than 2000 will attend. The difficult straits in which the coal industry and in some degree the oil industry find themselves has helped to stimulate interest and many vital questions will be considered during the deliberations.

The list of papers to be given at the meeting, which are of special interest to oil men and refiners, is given below:

Early History of Hydrogenation, by Dr. Friedrich Bergius, Germany.

The Dispersion of Coal in a Liquid Medium, by Prof. A. Gillet, Belgium.

Further Investigations of the Action of Hydrogen upon Coal, by J. Ivon Graham and D. G. Skinner, England.

Catalysts in Hydrogenation Cracking, by Andre Kling and Daniel Florentin, France.

Catalysts for High Pressure Reduction and Hydrogenation of Phenols and Hydrocarbons, by Dr. Hans Tropsch, Czechoslovakia.

Synthesis of Lubricating Oils from Coal and Its Gaseous Products, by Prof. A. W. Nash, England.

The Simultaneous Cracking, Carbonization and Gasification of Coal and Oils, by G. Egloff and A. Fisher, United States.

The Formation and Combustion of Hydrocarbons, by Prof. Dr. E. Berl, Germany.

The Interrelationships of Coal, Petroleum and Natural Gas, by Dr. W. T. Thom, Jr., United States.

Correction

On page 18 of the Sept. 23 issue was published a photograph and cartoon of Leland V. Stanford, vice-president of the Sinclair Refining Co. Mr. Stanford was erroneously referred to as being general counsel of the Sinclair companies. G. T. Stanford, Leland's brother, is general counsel. The error came about through a telephone call that went to the secretary of the wrong brother.

Leland V. Stanford came to the Sinclair Refining Co. at the close of the war. When Sinclair bought the Union Petroleum Co. in 1922 he was sent to Philadelphia to head the Union's export department. Later he came to New York as assistant head of Sinclair's export department and was placed in charge of the department in 1927.

East Texas to be Half Drilled by Jan. 1 With 3200 Completed Wells

HOUSTON, Sept. 26

By Paul Wagner
N. P. N. STAFF WRITER

DRILLED at its present rate, which includes approximately 80 wells completed weekly, the East Texas oil field in Gregg, Upshur, Rusk and Smith counties will be about half developed by Jan. 1, 1932.

The field will then have in excess of 3200 completed oil wells on approximately 114,000 acres, the present estimated total of the producing area.

Unless further reductions are made in the per well production allowable, now fixed by the state railroad commission at 185 barrels, the field may be expected theoretically to yield 592,000 barrels daily by that time.

Actually, production will be somewhat lower, reflecting inability of some of the East Texas wells to make their allowable; because of pressure declines and edgewater intrusions.

Figures for the present week showed 366,240 barrels, actual daily production, from 2019 wells. Theoretically, the field should have produced 373,515 barrels daily on the basis of 185 barrels daily for each well.

Pressures decline in some of the densely drilled areas of Rusk and Gregg counties will increase the number of wells which cannot make this allowable by Jan. 1.

Exact measures of such declines are not possible now but, restricted to 185 barrels per well, the field should still produce by Jan. 1 betwen 500,000 and 550,000 barrels daily. The railroad commission's disposition to hold East Texas production at or below 400,000 barrels daily may, however, bring adjustments in the per well producing rate.

Developed on the basis of one well to 20 acres, as contemplated in railroad commission orders effective Sept. 15, drilling up of the field calls for a total of 5700 wells.

A larger number may actually be completed powering, perhaps, 6500 wells, because of earlier development on the basis of one well to 10 acres; and the drilling of small tracts, of from one to five acres, in congested parts of the field.

One well may be drilled on any size tract of less than 20 acres to protect vested rights and prevent drainage of offsetting developed leaseholds.

Before the one-well-to-20-acres order was issued, drilling generally was 330 feet from property lines, or 660 feet from offsets, approximating one well to 10 acres, by principal operators. Advantage was taken by some smaller operators, however, of a commission rule permitting drilling within 150 feet of lease boundaries.

DRILLED on a basis of 660-foot offsets, including allowance for small tract locations, complete development of the field would have called for more than 12,000 wells.

Much has been said about the high rate at which development has been going ahead in East Texas in general, with special emphasis on the rate at which certain major companies have drilled their properties.

The fact cannot be gainsaid that an accelerated development rate will make more oil immediately available for market. Nevertheless, operators are fairly well agreed no considerable restriction on East Texas development is possible until the field is drilled up; between 5700 and 6500 wells on the 20-acre basis (no one believes units could be larger in this small tract country) or more than 12,000 wells had development conformed to the earlier order of the railroad commission allowing 660-foot spacing.

To date, in the three most highly developed areas of the general district, 2600 acres in the Henderson (Joiner) territory have been drilled one well to 10 acres, average; 1800 acres in the Kilgore territory, one well to 10 acres; 2600 acres in the Longview territory, one well to 19 acres.

The remainder of the field has been drilled mainly one well to 100 acres, so far, but increased development cannot be avoided. Fully 70 per cent of East Texas territory is not now represented by wells drilled on the basis of one to 10 acres.

"Inside" locations are being found necessary by companies owning large tracts, or blocks, because of the density of wells drilled adjacent to their properties.

Although most owners of large blocks have been able to hold development to relatively few wells on separate ownership leaseholds, when well inside their blocks, the density of drilling adjacent to outside boundaries has frequently called for extensive protective measures against underground drainage.

An example is found in Humble Oil & Refining Co.'s 1800-acre Kilgore block, northwestern Rusk county, consisting largely of Crim acreage, where application was made to the railroad commission for a row of "inside" wells 660 feet back of boundary locations, because of the density of drilling on small tracts to the south.

DENSE drilling had resulted in approximately two and a half times the development by small tract operators as by the Humble in previous operations.

The Humble, as the field's most extensive owner of proved leaseholds, controls 16,763 acres, or 14.71 per cent of the 113,988 acres now accredited to the field. Figured on total acreage in the field, the Humble is now entitled to 297 completed wells out of the 2019 producing early in the present week.

Humble's actual number of completed wells then was 260,

with approximately 60 drilling operations under way. A statement by President W. S. Farish, at Houston, Sept. 23, said the Humble had adopted a program of curtailed development for East Texas, effective immediately, "that would result in a reduction of the number of drilling rigs operated by the company to 50 per cent, or less, as fast as the present drilling wells are completed."

On this basis, Humble's drilling wells will be cut to 30, or lower, resulting in average completions for the company weekly of nine wells, or less. To the extent that other operators in East Texas cooperate in such reduced development may depend the lowering of the drilling rate throughout the territory.

The two next most extensive operators after Humble, considered in terms of wells completed and drilling, are Gulf Production Co., controlling 8.82 per cent of the proved acreage, and Magnolia Petroleum Co., owner of 3.95 per cent of total leaseholds. In common with Humble, they are "behind in drilling," as compared with number of wells to which their acreage entitles them on the basis of general conditions in the field.

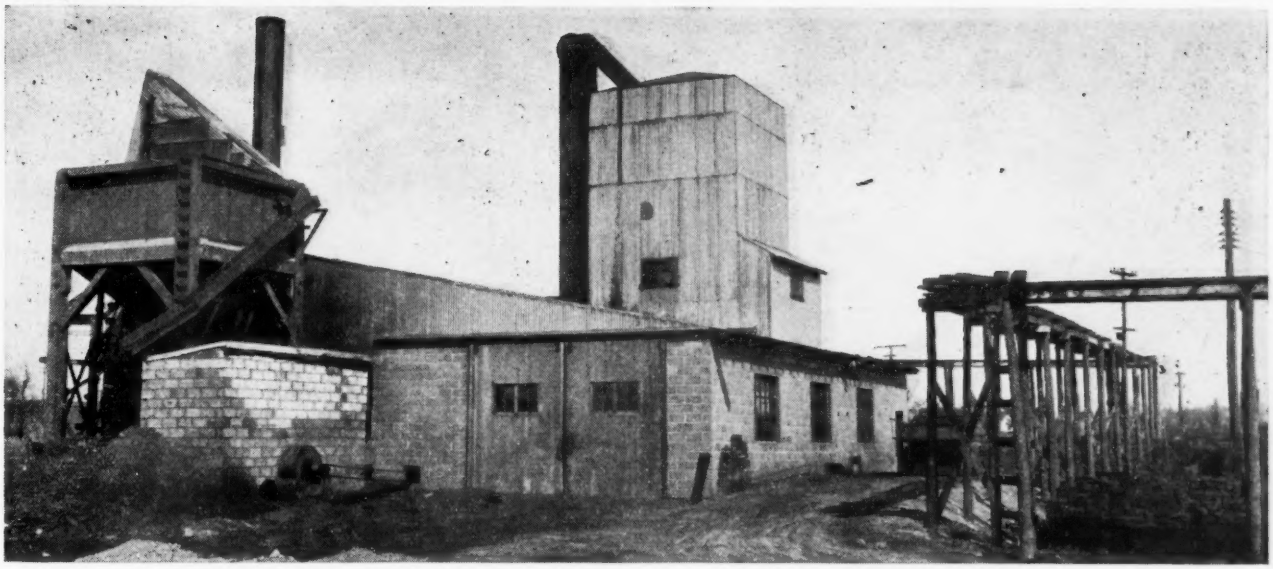
Acreage Holding and Development in East Texas to Sept. 1, 1931

GROUP CONSISTING OF 19 MAJOR COMPANIES

Company	Leaseholds No. Tracts	Leaseholds No. Acres	Per Cent of Field Total	Acreage Developed No. Tracts	Acreage Developed No. Acres	Per Cent of Leasehold	Per Cent of Total Area Developed (Producing)
Humble Oil & Rfg. Co.	242	16,763	14.71	91	8,785	52.41	18.83
Gulf Production Co.	133	10,056	8.82	52	4,022	40.00	8.62
Shell Petroleum Corp.	88	6,393	5.61	25	1,768	27.66	3.79
Sun Oil Co.	81	4,902	4.30	23	1,985	40.49	4.26
Sinclair O. & G. Co.	39	4,828	4.24	21	3,191	66.09	6.84
Magnolia Petroleum Co.	86	4,508	3.95	36	2,139	47.45	4.59
Mid-Kansas O. & G. Co.	40	3,154	2.77	7	726	23.02	1.56
Tidal Oil Co.	39	3,013	2.64	22	1,928	63.99	4.13
The Texas Co.	39	2,947	2.59	15	1,031	34.98	2.21
Stanolind O. & G. Co.	44	2,714	2.38	18	996	36.70	2.14
Arkansas Fuel Oil Co.	43	2,423	2.13	19	1,080	44.57	2.32
Atlantic O. P. Co.	19	2,176	1.91	6	637	29.27	1.37
Empire Gas & Fuel Co.	27	1,697	1.49	5	274	16.17	.59
Amerada Petroleum Corp.	12	938	.82	1	100	10.66	.21
Prairie O. & G. Co.	9	631	.55	3	220	34.87	.47
Continental Oil Co.	6	502	.44	2	152	30.28	.33
Vacuum Oil Co.	6	475	.42	4	348	73.26	.75
Barnsdall Oil Co.	7	392	.34	3	136	34.69	.29
Pure Oil Co.	3	241	.21	.....	.....	.....	.....
TOTAL 19 COMPANIES	**963**	**68,753**	**60.32**	**353**	**29,518**	**42.93**	**63.28**

SECONDARY GROUP OF 29 OPERATORS
(Over 230 Acres Each)

H. L. Hunt	44	2,099	1.84	18	873	41.49	1.87
Yount-Lee Oil Co.	43	1,967	1.73	19	1,164	59.18	2.50
Cranfill Reynolds Co.	28	1,274	1.12	13	426	33.44	.91
Houston Oil Co.	33	1,174	1.03	16	579	49.32	1.24
Selby O. & G. Co.	5	957	.84	3	524	54.75	1.12
East Texas Refg. Co.	27	862	.76	19	685	79.47	1.47
Ward Oil Co.	6	695	.61	5	259	37.27	.56
Danciger O. & R. Co.	7	534	.47	....	.....	.....	.....
Golding & Murchison	13	541	.47	7	364	67.28	.78
Republic Prod. Co.	17	521	.46	9	336	64.49	.72
Warner-Quinlan Oil Co.	9	434	.38	..	.....	.....	.....
Weaver Crim Oil Co.	10	416	.36	1	82	19.71	.18
Superior Oil Co.	3	354	.31	1	55	15.54	.12
Campbell et al	1	327	.29	..	.....	.....	....
Roeser & Pendelton	10	319	.28	6	172	57.92	.37
Simms Oil Co.	6	313	.27	2	33	10.54	.07
Cardova Union Oil Co.	7	284	.25	3	106	37.32	.23
Devonian Oil Company	7	289	.25	2	109	37.72	.23
Smith, E. L.	5	282	.25	2	140	49.65	.30
R. M. V. Oil Co.	4	274	.24	2	125	45.62	.27
Oliphant O. G.	8	275	.24	3	111	40.36	.24
Fain-McGaha	6	270	.24	3	112	41.48	.24
Navarro Oil Co.	8	257	.23	6	204	79.38	.44
M. Hammond et al	5	253	.22	1	2	.79	.004
Pilot Oil Co.	6	246	.22	6	246	100.00	.53
Woodley Pet. Co.	11	239	.21	6	110	46.03	.24
Kirby Petroleum Co.	5	241	.21	3	196	81.33	.42
Columbia O & G Co.	7	245	.21	4	130	53.06	.28
Byrd-Frost Oil Co.	7	233	.20	1	9	3.86	.02
TOTAL 29 OPERATORS	**338**	**16,275**	**14.28**	**161**	**7,152**	**43.94**	**15.33**
284 Small Operators	611	13,101	11.49	437	9,977	76.15	21.39
350 Small Operators	442	9,218	8.09	.....	.....	.....	.....
663 Unlisted:	216	6,641	5.83	.....	.....	.....	.....
TOTAL	**2,570**	**113,988**	**100.00**	**951**	**46,647**	**40.92**	**100.00**



Council Bluffs petroleum coke briquetting plant, showing part of cooler-conveyor

Binder is Critical Factor In Briquetting Refinery Coke

By Arch L. Foster

N. P. N. STAFF WRITER

BRIQUETTING petroleum coke into blocks which are clean, non-shattering, dustless, which ship better than coal or the original coke, and at a total cost which makes the manufacture of this fuel commercially feasible, are claims made by the Kleen Blox Engineering Co. of Omaha, Neb. The process and machinery for the manufacture of this fuel have been developed mainly during the last two years, and grew out of experimental work on the briquetting of coal screenings, to which the process is also being applied.

The disposal of petroleum coke, both from so-called coke stills and from cracking plants, has been one of the major problems of the oil industry during the last few years, and in some localities presented serious difficulties. The increase in the amount of petroleum cracked to produce gasoline has in many cases aggravated the problem, especially for Mid-Continent refiners and those processing Mid-Continent crudes to manufacture lubricants by the older method of the coking shell still. Disposal of this fuel, possessing a high heat value and an excellent fuel when suitable provisions are made for handling it, has been, and is, mainly by the following outlets:

1. To domestic users in lump form for home heating.
2. To manufacturers of carbon electrodes for industrial electrical equipment.
3. To industrial power plants, where it is burned as powdered fuel in plants equipped with machinery similar to that used with powdered coal firing.
4. To bakeries, etc.
5. As metallurgical coke, where the properties of the material make it especially suited to the purpose, provided suitable equipment is used to handle the fuel properly to produce the desired results.

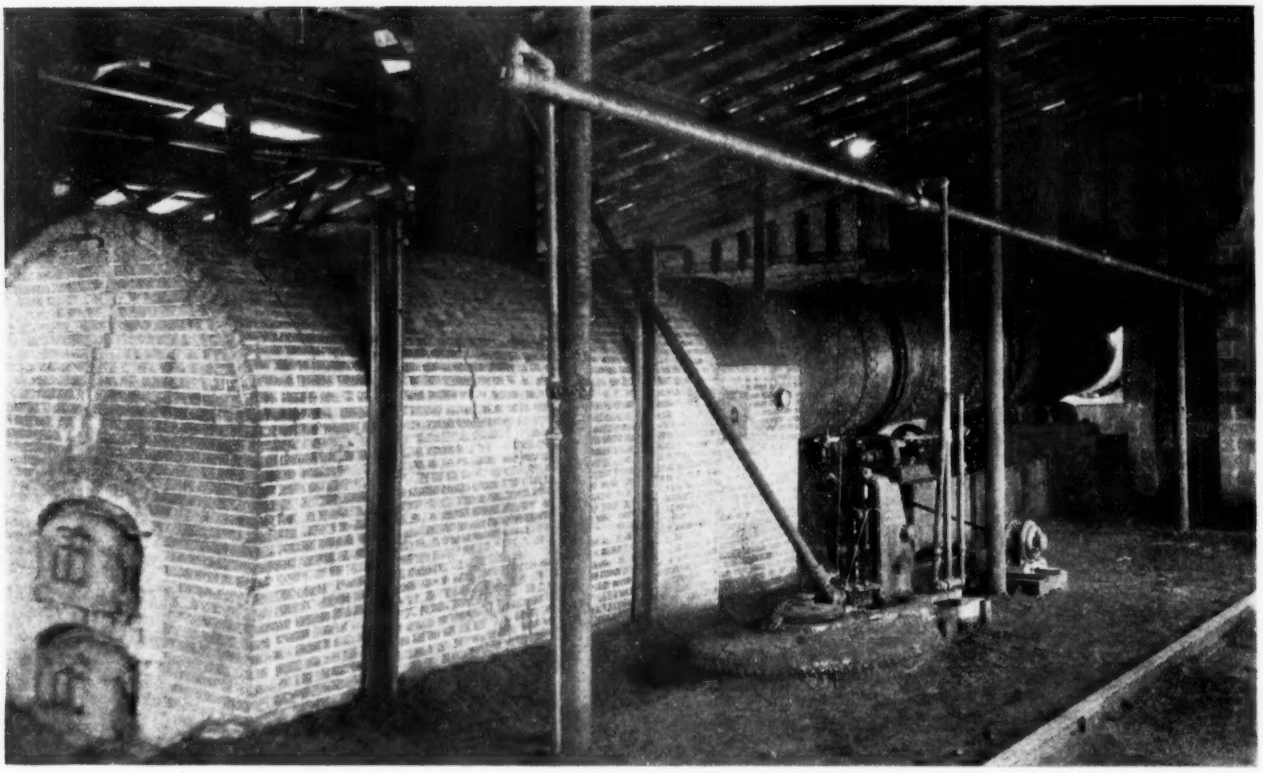
Other minor uses for still coke have been found but these enumerated above constitute the major outlets.

Serious efforts have been made by different groups to develop a suitable commercial briquet from this coke, with

EVERY refiner who produces coke, either by cracking still or "coke" still, is interested, potentially or actually, in methods of disposal of this coke which will remove this source of difficulty and give a profit or at least reduce the loss incident to this troublesome by-product. Especially is coke "breeze" a problem.

This article on a new method for briquetting coke gives the results obtained in practical application of mechanical engineering principles to the solution of the problem in one case in The Middle West. Whether or not the process is generally applicable remains to be more fully demonstrated; the results here given indicate that the method may be worthy of consideration by those confronted by such a problem.

Editor.



Rotary coke dryer used in preparing coke for mixing operation. The drum of the binder tank is seen just above ground level, center foreground

varying degrees of success. Apparently one of the major drawbacks has been the difficulty of producing a block which would not disintegrate with handling, which did not prove smoky and disagreeably dirty to handle and use. Probably the greatest difficulty has been to keep the total cost to the consumer within proper limits, to make the operation of such a plant a commercial success.

The process for briquetting, or "blocking" petroleum coke considered in this article is briefly stated in the following steps; drying of the coke, "as is"; mixing dried coke with a heavy petroleum residual as binder, at an elevated temperature; compressing measured quantities of this mixture in a suitably designed press into the form of briquet desired; cooling of the completed briquet.

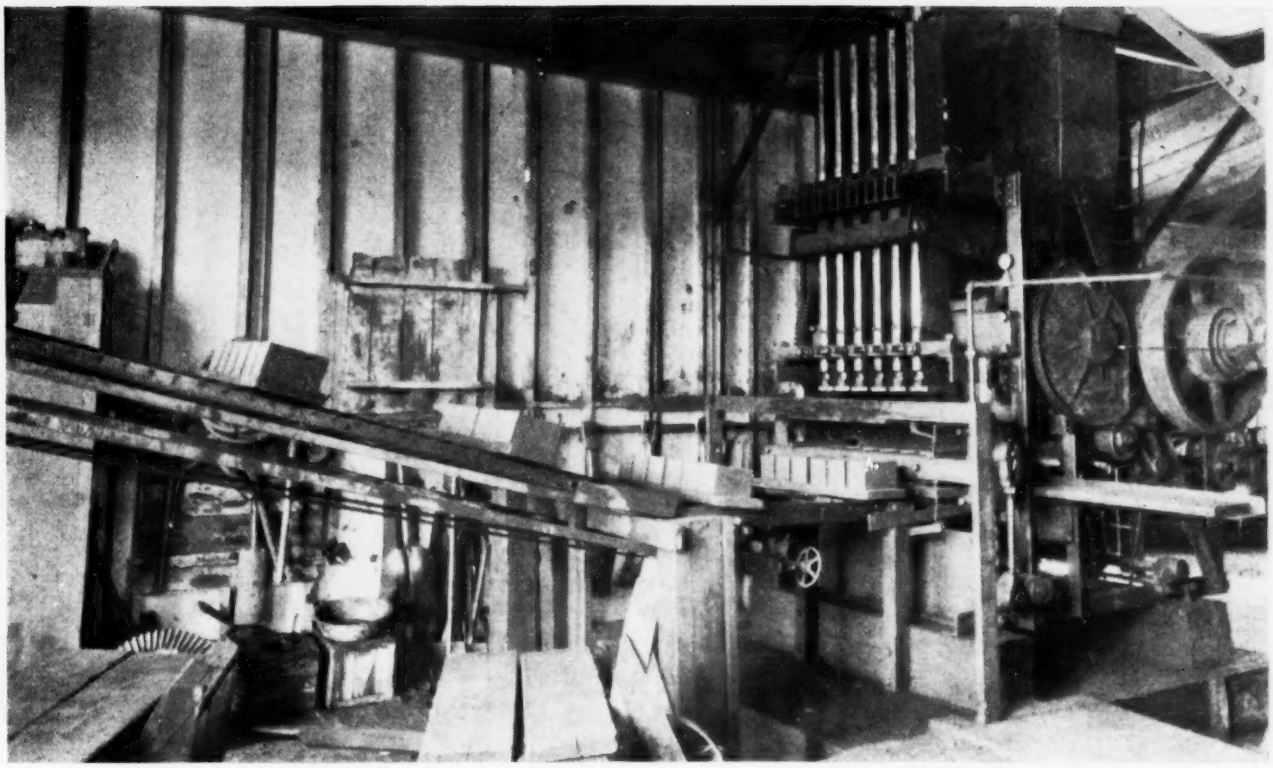
The plant built at Council Bluffs, Iowa, has a capacity of 15 tons of finished blocks per hour and has been in operation for more than a year. The coke used as raw material in this plant is obtained from refineries in northern Oklahoma at present, and is in the form of screenings. The equipment employed includes two bucket-, one screw-, and one roller-conveyor; raw screenings bin, and a bin for the dried hot screenings; rotary drier, similar to that employed formerly in refineries for drying fullers earth, and still used in many plants; a binder heating tank, and a mixing tank; the briquet press, a 25 H.P. boiler and the necessary motors, etc., for operating these items of equipment.

Coke screenings as received in gondola cars is first "chuted" into a bucket conveyor hopper and carried to an overhead storage bin, from which it is carried by screw conveyor to a rotary dryer kiln as shown in Fig. 2. Flue gases from the boiler furnace are passed through this dryer, and the screenings emerge at a temperature of about 300 F., passing to another bucket conveyor and being dumped into another overhead bin from which the "charges" to the batch mixer are drawn as required.

The dryer is 50 feet in length, equipped with Z-shaped baffle irons for promoting greater contact between coke and drying gases. From the "hot bin" the coke is passed into a "batcher" which measures the amount of coke used per batch; then to the mixer where it is coated by agitation with a measured amount of binder just sufficient to coat the coke with a thin film of the hot binder. This mixer is of 60 cubic feet capacity, fitted with hardened liners and mixing blades, the latter driven by electric motor.

The binder is obtained in steam coil-equipped tank cars, and flows by gravity to an underground tank, also equipped with steam coils, where it is retained under 30 pounds air pressure. Binder is forced from this tank to the mixer through a steam jacketed line by the air pressure in the tank.

After mixing coke and binder at an elevated temperature, the mixture is passed to the feed hopper which supplies the press. This press is somewhat like the old stamp mill used in crushing ores; steel molds of the desired dimensions, in this plant five by five by eight inches, are supported on a heavy steel frame, above which are suspended heavy stamps, or rams, the heads of which fit snugly the open tops of the molds or dies. The stamps in this plant weigh about 500 pounds each; six



Six-unit briquetting press, with capacity of 15 tons per hour. Note the finished briquets passing from the press to conveyor, supported on the slab on which they were made

stamps and molds make up the press.

At the beginning of the cycle, the six molds are filled automatically with hot mixture from the hopper above, the stamps are forced down, exerting on the material in the molds a pressure, according to the engineer's statements, of about 80,000 pounds. This blow and high pressure forces the particles of coated coke together into a homogeneous brick or block, forcing out air and welding the mass into a unit.

While the stamps remain in place an instant at the bottom of their travel, the sides of the mold are raised slightly to break the formed brick free, the carriage beneath them carries the bricks forward beyond the press, the molds drop into place, the stamps are raised, another charge of mixture passes into the molds and the process is repeated.

From the press a belt conveyor carries the hot bricks upward and outside the building onto a roller conveyor which carries the finished product through a distance of some 500 feet at a regular rate, in the open air. During this passage the bricks cool, and when the end of the conveyor is reached are ready for stacking in storage or in trucks or railroad cars for delivery.

According to F. W. Whipperman, mechanical engineer who developed the process and equipment, the two most important phases of the entire process are the drying of the coke, and the physical properties of the binder employed, as well as the temperatures of mixing and pressing.

Removal of the water contained in the coke, from whatever source, eliminates the possibility of formation of steam during mixing, pressing and afterward, conditions which would militate seriously against the homogeneity of the resulting block, and against its resistance to breakage and spalling in handling and use. Drying also clears the pores of the coke, improves its absorption of binder, and increases the welding action of the binder to produce a solid, hard product.

The greatest source of difficulty is probably the nature of the binder. That employed successfully in plants already installed using this briquetting method has a melting point of 135 to 150 F., and a low penetration. It is imperative, according to the company engineers, that this binder when cold, does not have a tacky consistency; in this case the briquets made will be spongy, oily and unsatisfactory to handle, breaking or distorting easily and giving a smoky flame, cementing together in the furnace and causing bridging in the furnace.

The inspection of a suitable binder as manufactured by one middle west refiner is as follows:

Softening Point	138-146F.
Penetration @ 77 F., (Asphalt test)	8-12
Volatile matter	0.01%

Of almost equal importance, they say, is that the binder be heated to a temperature sufficiently high that it flows easily, its viscosity is very low and it will therefore spread evenly over the coke, the latter retaining only a minimum quantity of binder, just sufficient to give maximum binding power without any excess. Mixing with binder at too low a temperature will also result in a soft spongy brick, burning smokily, with a marked tendency to smother the fire in the furnace.

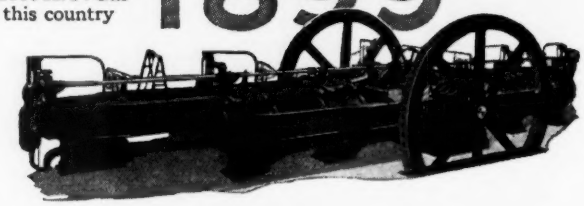
Those responsible for the de-

TRANSIT Engineering

has always led

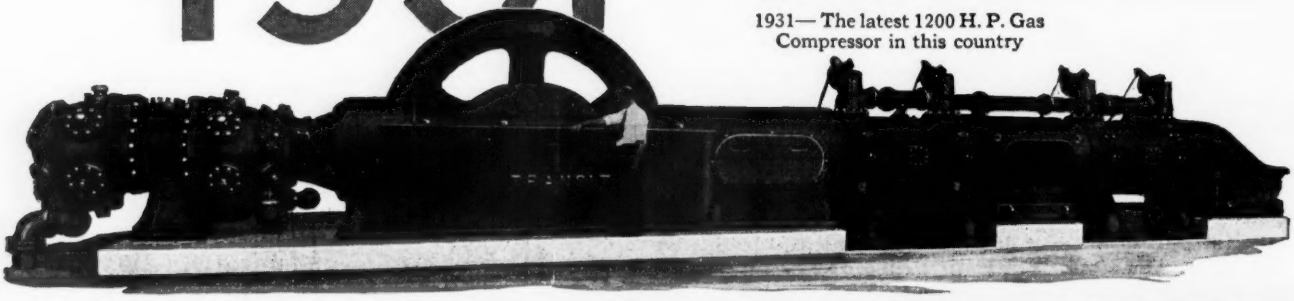
1899— The first 1000 H. P. Gas Compressor in this country

1899



1931

1931— The latest 1200 H. P. Gas Compressor in this country



TRANSIT 1200 H.P. 23 x 36" TWIN TANDEM, 4 CYCLE, DOUBLE ACTING GAS ENGINE COMPRESSOR

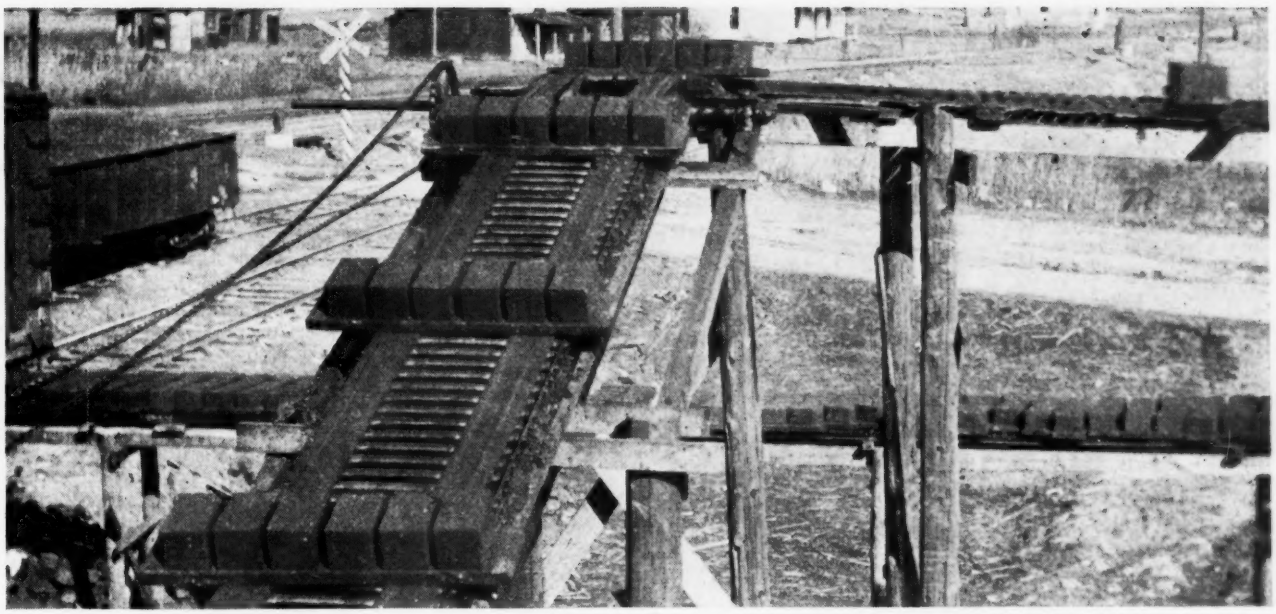
The design and production of 1200 HP Gas Engine Compressors demands keen, experienced engineering talent.

This same company that designed and produced the first 1000 HP Gas Engine Compressor, 33 years ago, now brings out a 1200 HP Gas Engine Compressor that contains the accumulated experience of 35 years of engineering; also the broad personal experience of such outstanding engineers as Daugherty and Sargeant of national reputation.

That the original 1000 HP Gas Engine Compressor, now 33 years old, is still in daily operation and giving good service is part of the picture; but the principal character is the new 1200 HP Gas Engine Compressor designed and manufactured upon the accumulated experience of designing and building 1200 gas engines ranging in size up to 1000 HP.

We realize that a compressor of this size is interesting to but few gas men. We cordially invite such men to visit our plant and inspect this engine on test.

NATIONAL TRANSIT PUMP & MACHINE CO OIL CITY, PENNA.



Finished briquets on conveyor, cooling en route to loading platform

velopment of the process state that some of the advantages of this fuel are the difficulty of fracturing the briquet, which breaks after the fashion of an ordinary brick, possessing little friability. Spalling and shattering does not occur, they claim. The finished product may be stacked as are building brick, and can be handled without a shovel or other tool without soiling the hands.

Company engineers observe that costs of installation vary in each case somewhat, and in different localities, but that the average cost of a 15-ton-per-hour plant, installing all equipment new, is in the neighborhood of $50,000.

The cost of manufacture also varies considerably, depending on the proximity of the location to sources of supply of coke and binder. The quoted costs of manufacture at the Council Bluffs plant are given below as being representative.

Costs of Briquetting Petroleum Coke at Council Bluffs, Iowa, 1931

Coke Screenings at Refinery	$2.25
Freight	2.19
Total cost of Coke Screenings at plant	$4.44
Binder per ton of Finished Fuel	.80
Labor and Overhead per ton of Finished Fuel	.35
	$5.59
Delivery cost per ton	1.00
Total cost in Consumers bin	$6.59

In another case, where coal screenings are being briquetted by the same process, the total cost has been quoted at less than $2.50 per ton of finished fuel; in this case the plant is located it is understood, near the mine, freight cost is negligible, and the screenings are bought at about $1.00 per ton. The amount of binder required per ton of finished fuel varies also with different conditions, but in one instance is given as about 100 pounds, which may be taken as a representative average, according to statements of officials.

NEW EQUIPMENT

The C. J. Tagliabue Mfg. Co., Brooklyn, N. Y., has placed on the market a new steam trap, an outstanding feature of which is a differential setting making it possible for this device to discharge condensate at a temperature corresponding to uniform differential pressure from 0 to 20 pounds below the operating steam pressure.

If the trap is set to discharge condensate at a temperature corresponding to as much as 20 pounds less than the operating steam pressure, it will discharge the condensate at this differential regardless of whether the steam pressure is 50 pounds or 125 pounds and without any further adjustment of the differential setting.

Other advantages, pointed out in a recent bulletin, may be tested by a 30-day free trial the company is offering for this new Tag steam trap.

* * *

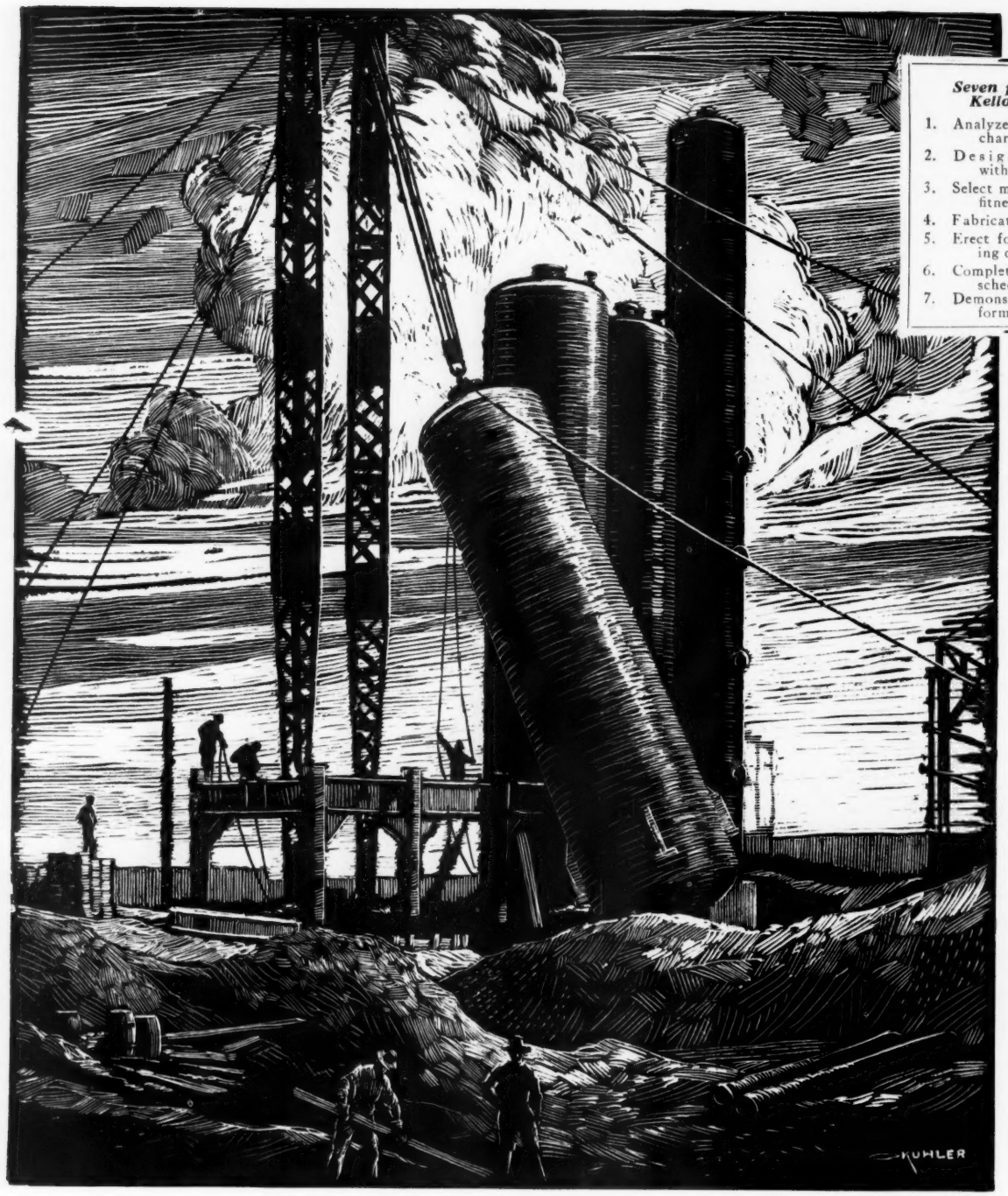
Elliott Co., Pittsburgh, Pa., has published a 16-page bulletin on its fractionating, condensing and vacuum producing equipment for distillation processes, in which it describes and illustrates a combination vacuum distillation and atmospheric rerun unit for lubricating oil it manufactured for a Mid-Continent refiner; bubble towers, tubular condensers, heat exchangers, barometric condensers and steam jet ejectors.

Construction details are given and there are several illustrations showing various installations at refineries.

* * *

The Brown Instrument Co., Philadelphia, has published a broadside on the Brown electric flow meter which records the amount of steam used during any part of the 24 hours.

A special patented feature of this device, is that the automatic recording planimeter, making a marginal record on the chart, supplies proof that a definite number of pounds of steam, gallons of water, cubic feet of gas, or barrels of oil were delivered, utilized or wasted.



Seven principles of Kellogg service

1. Analyze and know the charging stock.
2. Design for capacity without overloading.
3. Select materials of tested fitness.
4. Fabricate only the best.
5. Erect for steady, unfailing operation.
6. Complete construction as scheduled.
7. Demonstrate plant performance.

Lifting a 10 by 40 foot drum into location during the construction of a Kellogg cracking unit.

"Complete construction *as scheduled*"

. . . . *the sixth principle of Kellogg Service*

Kellogg facilities for the design, fabrication, and erection of equipment are complete. As a result, Kellogg controls each step in the fulfilment of the contract, and construction schedules are maintained.

The M. W. KELLOGG COMPANY, *225 Broadway, New York*

LOS ANGELES, CAL., 1031 SOUTH BROADWAY TULSA, OKLA., PHILTOWER BUILDING

Kellogg products include Gross, Holmes-Manley, and de Florez cracking units; de Florez furnaces and temperature control apparatus; pipe stills; Pacific Centrifugal Pumps; absorption, stabilization, and treating plants; Masterweld pressure vessels; complete refinery and power plant piping.

DOMESTIC CONSUMPTION of LUBRICATING OILS

By John D. Gill*

(Presented before National Petroleum Association, Atlantic City, Sept. 16-18)

OUR ignorance of the subject is much more extensive than our knowledge of it.

We do not know even how much lubricating oil is used by automotive equipment, although such usage provides our integrated industry with a revenue probably exceeding $300,000,000 annually.

Our industry has been engaged so busily on the problems arising out of potential crude oil overproduction and the lack of balance between the demand and supply of gasoline that it has neglected consideration of certain important subdivisions of its operations, notably the lubricating oils group. Our industry is big enough and, in the opinion of the writer, should be organized well enough to give attention simultaneously to several economic problems.

The industry is not without some helpful statistics of lubricating oils. For example, the following facts are supplied monthly: the regional production and stocks of lubricating oils, collectively, from which refinery shipments by regions may be calculated; the exports by customs areas, for each of three groups of lubricating oils; and the country-wide calculated "indicated domestic consumption" of all classes of lubricating oils, collectively. It is highly significant that, with the exception of exports, the available data refer to a composite of all lubricating oils, including products which vary in viscosity, Saybolt, from 60 seconds at 100°F. to more than 300 seconds at 210°F; in price, from about 5 cents per gallon to upwards of $1 a gallon; and in cost of manufacture, from probably not more than 1 cent per gallon to several score cents per gallon. Altogether the available statistics deal with an extremely heterogeneous group of products.

THE need for adequate statistics on consumption of lubricants in both the automotive field and in general industrial use, as a guide to the oil industry, was dwelt upon by Mr. Gill, in his presentation of the accompanying paper before the National Petroleum Association at Atlantic City.

Facing a decline in consumption of industrial lubricants, and with the prospects of an increase in consumption of automotive oils, much less relatively than the anticipated gain in motor fuel consumption there is imperative need for such statistics if the stability of the markets for these petroleum products is to be maintained.

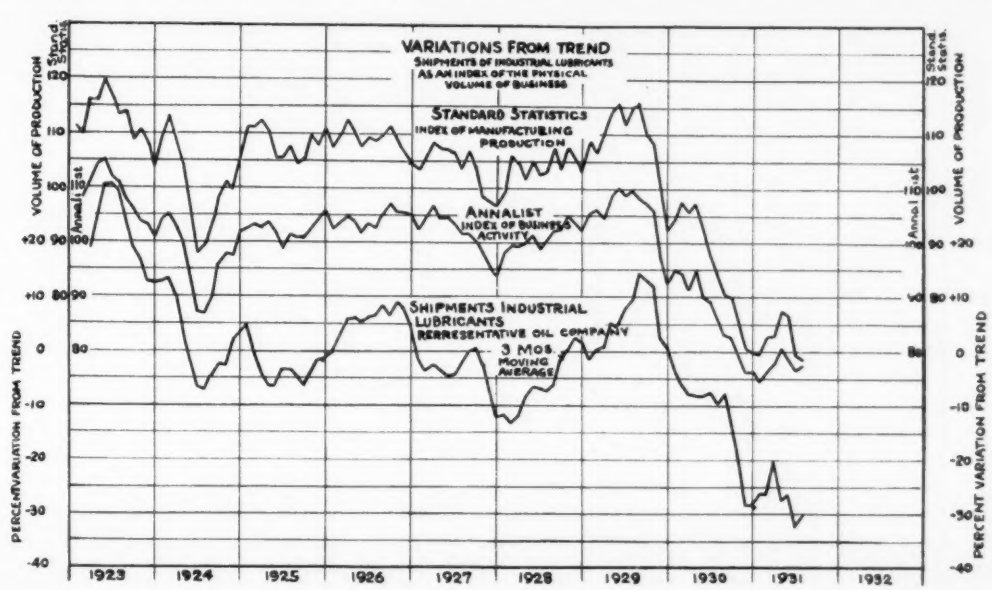
Mr. Gill's address contains the first published material on the trend of consumption of lubricants and is worthy of study by all readers.

The industry needs facts pertaining to approximately homogeneous groups of products.

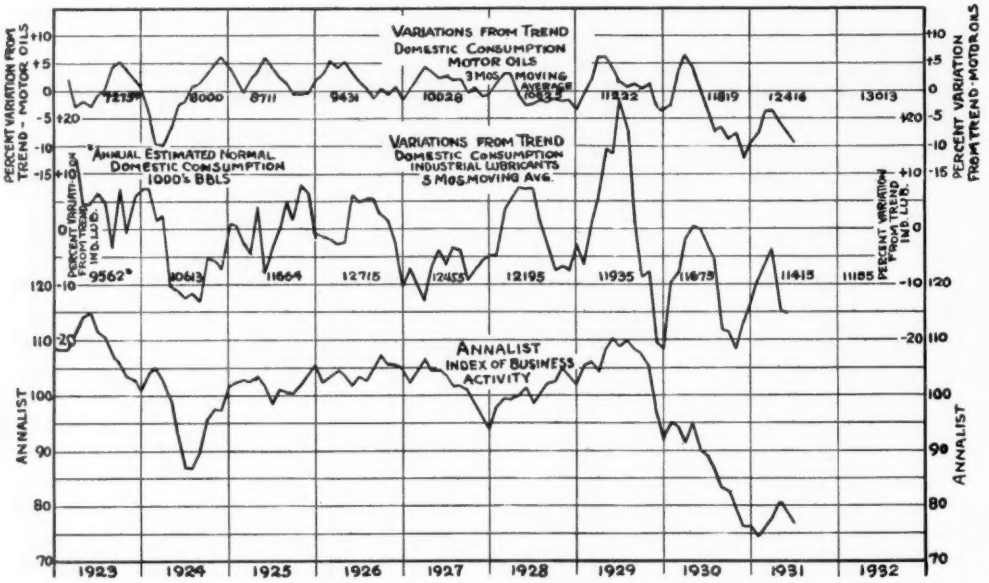
The refinery value of the lubricating group consistently has exceeded 10 per cent of the refinery value of all petroleum products; and in recent years has approximated $225,000,000 annually. For refiners of Pennsylvania grade crude oils the value of the lubricants' group has represented 45 per cent to 50 per cent of the value of all products.

Basic economic data are reported monthly to trade associations and published by the Federal government, for many products whose values separately compare insignificantly with the

*Atlantic Refining Co., Philadelphia.



Graph Set No. 1—Variations from Trend — Shipments of Industrial Lubricants as an Index of the Physical Volume of Business



Graph Set No. 2— Variations from Trend — Domestic Consumption of Motor Oils, Industrial Lubricants, and Annalist Index

estimated values of each of the more important subdivisions of the lubricating oil group. Among these products for which statistics are currently reported may be included:

Acetate of Lime	Refined Arsenic
Crude Methanol	Animal Glues
Refined Methanol	Edible Gelatin
Ethyl Alcohol	Powdered Milk
Wood Rosin	Brass Wire Cloth
Wood Turpentine	Rubber Heels
Pine Oil	Rubber Soles
Crude Arsenic	Pearl Buttons

yet the total factory value of all of these items is less than the refinery value of all lubricating oils.

The intrinsic worth of the lubricating oil group greatly exceeds its monetary value. That is, to industry and the arts, lubricating oils are worth more than is paid for them. Modest elaboration of this fact might consume easily more space than is allotted to this entire paper.

That the intrinsic worth is greater than the monetary value may be illustrated by the saving in power generation made possible through the use of lubricating oil. Indeed, power generation on the scale of the twentieth century, in this so-called machine age, would be scarcely possible without our lubricating oils. By the reduction in friction a gallon of lubricating oil costing 20 cents makes possible a saving of many times 20 cents in reduced fuel and prime mover maintenance costs. Moreover, there are no adequate substitutes for petroleum lubricants. Potential substitutes, such as animal, vegetable, and fish oils are produced in relatively insignificant quantities and are available only at costs several times those of petroleum lubricants. In the arts the intrinsic worth of petroleum products is discerned more readily. Leather oil (a special sub-division of the lubricating group) may be incorporated in leather by a processor at a cost of 3 cents, or less, per pound, later to be sold at 40 cents or 50 cents per pound as oil-treated leather.

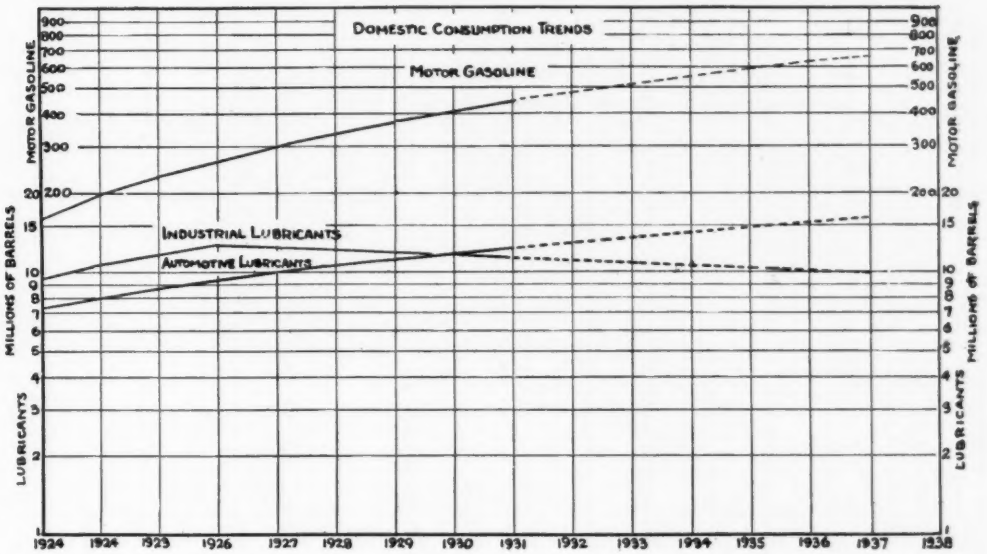
The volume of industrial lubricants currently consumed, related to a carefully determined trend, probably presents the best available single indicator of general business conditions. Such an application of consumptive data derives its usefulness through the fact that lubricating oils enter intimately into every major and most secondary economic operations of our time; into the extractive, manufacturing, and transportation branches of industry. (See graphs set 1 and set 2).

Our Markets for Lubricants at Stake

Regardless of the apparent importance of the lubricating group, as determined by its monetary value and intrinsic worth, there must exist more fundamental reasons to warrant the cost of the collection, compilation, and dissemination of greater information regarding them than now we possess. Such fundamental reasons appear to exist.

First, we may be losing gradually our markets for certain grades of lubricating oils without either being aware of the fact or taking steps to create replacements. Refer to graph 3 which shows the estimated trend of industrial lubricants, downward since 1926.

It would be natural to reason as follows: since the use of industrial machinery is increasing, the demand for industrial lubricants must be increasing. No doubt for certain groups of consumers of industrial lubricants such reasoning leads to a proper conclusion, but for other groups fundamental changes have ben affecting demand for industrial lubricating oils. To expand fully this aspect of the influences tending to reduce demand would require as much space as is available for all phases of the present paper. The following is illustrative, briefly: small factory prime movers are being superseded by purchased electric power from central stations. The annual consumption of lubricating oil by one 50,000 kv. a. turbo-generator may not exceed greatly the annual consumption of each of 500 small reciprocating steam units which, indirectly, the turbine replaces. Large central stations are replacing small public electric-generating plants. Indeed the head of a group of companies operating in the middle west has stated that his companies have discontinued operation of 476 small, obsolete, power plants. The cost to the railroads of a group of supplies, of which lubricating oils constitute the



Graph Set No. 3—Domestic Consumption Trends—Motor Gasoline, Industrial Lubricants, Automotive Lubricants

major item, declined 32 per cent between 1926 and 1930. The replacement of hand-oiling by central oiling systems, involving the use of clarification and re-generative processes has made it possible for a given quantity of lubricant to extend its usefulness almost indefinitely. Oil-cooled transformers are being replaced by air-cooled transformers and the latter in turn by still more advanced electrical systems of power conversion.

Secondly, as an industry, we may be investing in apparatus for the production of lubricants out of proportion to the existing or prospective demand therefor. At the spring, 1929 meeting of this association attention was called to the relatively high and rapidly increasing price of Pennsylvania cold test bright stocks. It was suggested then that the industry was in imminent danger of a too rapid increase of facilities to provide highly finished oils of this class. The price rose to 55 cents a gallon (see graph 4) but before the second half of 1929 had been entered the effects of over-expansion had begun to appear and continued in evidence until, by mid-year, 1931, the price of this grade of highly fabricated oils was less than one-third of its 1929 peak price.

Thirdly, we experience periodically violent fluctuations in the prices of the several major sub-divisions of the lubricating group. Such price fluctuations are not synchronous as among the several groups nor indeed synchronous with the price of crude oil from which they are derived (refer to graphs sets 4 and 5). Probably if one had the time, it would be possible to construct from the price data an estimated historical record of the relation between the demand and the supply for each of the major products shown on graph 4. On the other hand, one of the chief applications of the economic data concerning lubricating oils should be an increase in our vision of prospective price levels. In other words, with our existing price data we may look back at the probable historical status of the production-demand relationships and stocks; whereas with currently available economic data we should be able with tolerable accuracy to forecast prices.

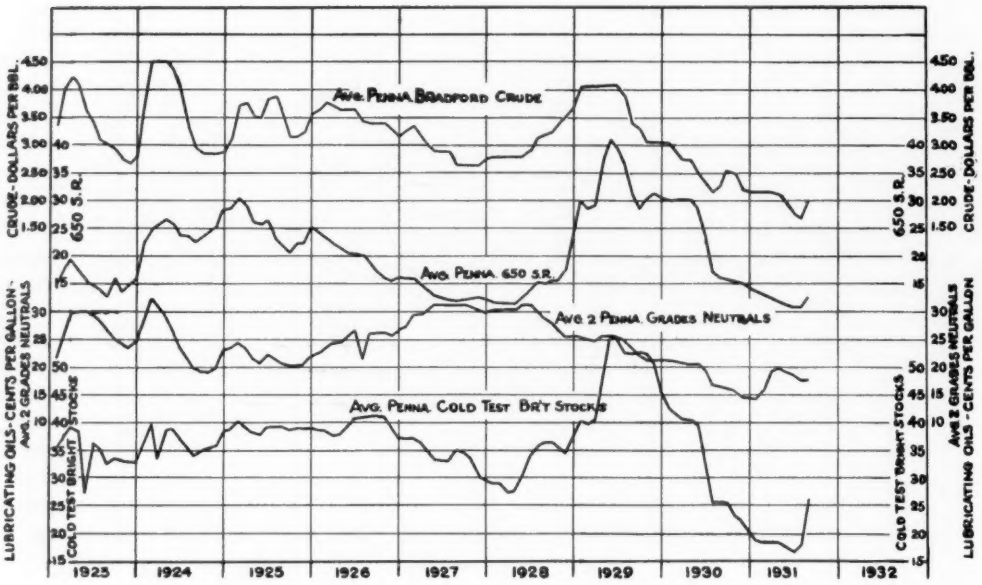
Finally, our lubricating products are in danger of losing value because the potential supply is tending to exceed the actual demand. For example, between 1926 and 1929, inclusive, domestic demand for all classes of lubricants increased less than 5 per cent whereas the refinery crude throughput increased over 26 per cent. In Pennsylvania, between 1926 and 1929, inclusive, production of crude oil increased more than 31 per cent and between 1925 and 1930, inclusive, more than 58 per cent. Obviously, as the potential supply of lubricating oil increases more rapidly than the demand for lubricating oil, there is set in motion forces tending to depress the market price of the lubricating group. This phase of the matter also is a subject for considerable elaboration.

Information Needed of the Uses of Lubricants for the Expansion of Markets

Our lubricating oil markets are at stake. For stabilization of this phase of refinery operations economic data respecting production-demand ratios and stocks by reasonably homogeneous sub-groups of products are required; but it would seem also that the industry needed greatly more thorough-going information regarding the uses of the individual members of the lubricating oil group. By a study of the uses to which these valuable products are put in their simple roles as lubricants, and in divers ways in the arts, new uses may be devised. Thereby the gap between the potential supply and the actual demand of the lubricating group may be maintained at a minimum, with significant effect upon the commercial value of our oils.

The piecemeal method of collecting facts by regional organizations is helpful but not thoroughly satisfactory. Variations in the number of reporting companies influence strongly the resultant compilations and affect greatly their usefulness. Moreover, the buyer as well as the seller has need of the information which such figures provide. The rules of the game require the dissemination of the data that all concerned may be informed.

Graph set 4 shows for certain



Graph Set No. 4— Monthly Quotations 1923-31 — Bradford Crude Oil, Pennsylvania 650 S.R., Pennsylvania Neutrals, Pennsylvania Cold Test Bright Stocks

It may be said with some merit that our industry will discover changes in demand and adjust its production thereto without the aid of additional statistical helps. But at what cost beyond the nominal expense of the ordinary methods of collecting and disseminating statistical information?

The needed information, called statistics, is merely an additional body of the rules of the game. Without them the industry can play a crude sort of game or with them a refined, more interesting, and progressive game.

Our industry is big enough to merit sub-divisions of the statistics of its important product groupings.

The Graphs

Graph set 1 presents the "variations from trend or normal" of the "indexes of manufacturing production," and the "indexes of business activity," as published by two well-known economic services for comparison with the variation from trend of the shipments of industrial lubricants by a representative oil company. The similarity is noteworthy. It may be concluded tentatively that the shipments of industrial lubricants, related to trend, represent an excellent indicator of productive and transport activities. While the first and second curves represent conditions for the entire United States, the third curve pertains to business over a limited area of the country. Moreover, the lubricants' curve is susceptible to the further criticism that it contains the effects of competitive influences.

Graph set 2 presents an attempt to relate the variations from trend of consumption of automotive oils and industrial lubricants with the indexes of business activity. It is to be recalled that we do not know the domestic consumption of automotive oils; nor do we know accurately the domestic consumption of industrial lubricants. The consumption of automotive oils has been calculated from previously determined relationships between the consumption of gasoline and automotive lubricants (see graph set 3). Subsequently, the domestic consumption of industrial lubricants has been calculated as the difference between the total domestic consumption of all lubricants and the estimated consumption of automotive oils.

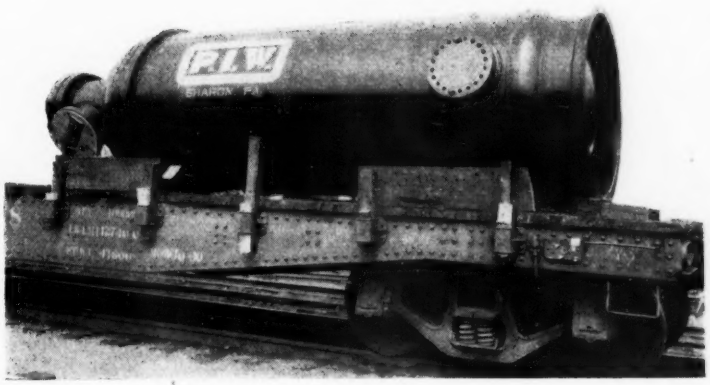
A possible reason for certain dissimilarities between the Annalist indexes of business activity and the variations from trend for the calculated domestic consumption of industrial lubricants may be understood from the following. From graph set 2 an apparently abnormal demand for industrial lubricants is shown for the spring of 1928. For the same period, from graph set 5, appears a relatively very low price level for refinery quotations for all lubricants. It is possible that buyers of lubricants bought for inventory unusually large quantities (perhaps of automotive oils) at the low prices of the spring of 1928. Since motor oil consumption is calculated from gasoline consumption such purchases are credited to the industrial group, probably erroneously. However, despite the need for such explanations, the industrial lubricants' graph portrays the booms of 1923, 1926, and 1929 and the depressions of 1924, 1927, 1930 and 1931.

Graph set 3 presents hitherto unpublished estimates of the trends of domestic consumption of motor gasoline, automotive lubricants, and industrial lubricants. Attention first is to be directed to the divergence between the trend lines for gasoline and automotive lubricants. Secondly, to the increase in trend of industrial lubricants to 1926 and the decrease in trend thereafter. For the industrial and automotive groups and for the domestic consumption of all lubricating oils the calculated trends and estimated actual demands, and the percentage variation of the "actuals" from trends are shown for the years 1923 to 1931, inclusive, in the accompanying table.

The estimated annual changes of consumption have such values that when related to the "normal" or "trend" consumption for 1931 the increase for automotive lubricants approximates 4.8 per cent; for industrial lubricants the decline is 2.2 per cent; and for the domestic consumption of all lubricants the increase is 1.4 per cent.

Reaction Chamber
2½" Wall—10' x 40'

PROVEN PERFORMANCE BACKS FLUID-FUSION WELDED REFINERY VESSELS



Above
Refinery Vessel for 800 lbs. working pressure

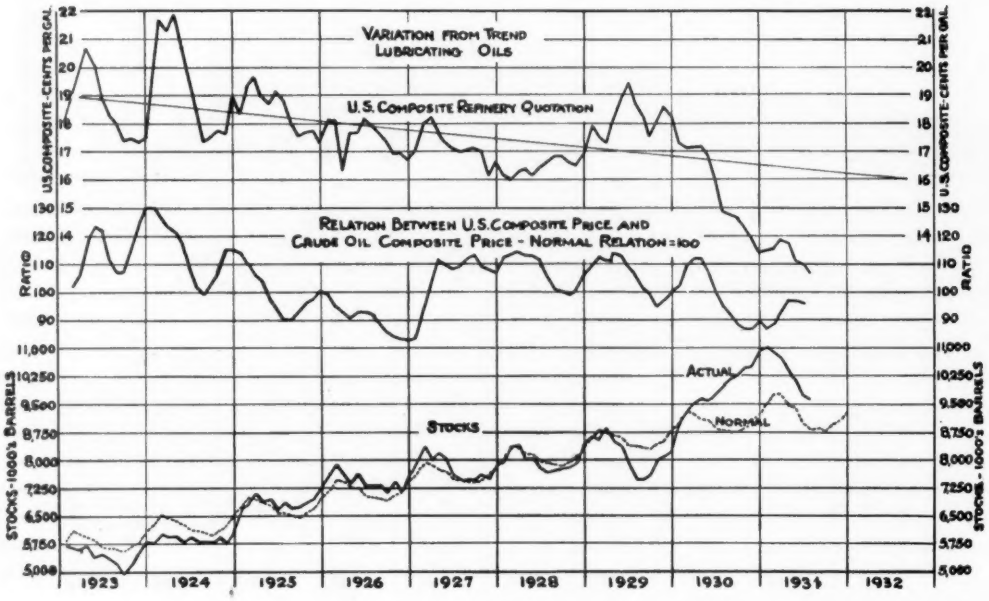
Below
Fractionating Tower 12' x 79' high with 69 nozzles and fittings.

FOR more than 6 years Fluid-Fusion welded refinery vessels have been building an enviable record for safe performance and sustained operation under the severest conditions of pressure, temperature and corrosion.

Serving in various capacities from high pressure reaction chambers to the lighter vessels with multiple nozzles and openings Fluid-Fusion welded vessels have proved their reliability in all the major cracking and distillation processes.

These tried and proven refinery vessels are offered with walls up to 6 inches thick in dimensions set only by railroad limits.

THE PETROLEUM IRON WORKS COMPANY
Sharon, Pa.
New York, N.Y. 25 W. 43rd St.



Graph Set No. 5—Variation from trends—Lubricating Oils (showing composite refinery quotations, relation between lubricating and crude prices and relation between normal and actual stocks of lubricating oils)

groups of lubricating oils from Pennsylvania grade crude the lack of synchronism in price movements among the several product groups and to a degree also the lack of similarity between product price movements and crude price movements.

Graph set 5 portrays first, a calculated trend of the U. S. composite refinery quotations for all classes of lubricating oils and the variation monthly of quotations from such trend. Second, the relation between the U. S. composite refinery quotations and the price of crude oil at the well; and finally, the relation between refinery stocks of all lubricating oils and an estimated refinery normal stock for lubricating oils. The relation between the subnormalcy of stocks in 1929 and the abnormalcy of prices simultaneously; and the abnormalcy of stocks in 1930 and 1931 and the subnormalcy of prices simultaneously is noteworthy.

The trend of normal refinery lubricating stocks as depicted is subject to slight modification to make allowance for the retarded rate of growth of domestic demand for all classes of lubricants in the most recent years of the series.

NEW EQUIPMENT

Republic Steel Corp., Youngstown, O., has developed what it claims to be the first tin plate on a rust-resisting base. It is known as Toncan iron tin plate and is recommended for use in chemical containers, gas meters, lithographing plates for signs, and other uses where rust and corrosion-resistant tin plate is required.

It possesses the same base analysis as Toncan copper molybdenum iron, being endowed with the rust and corrosion-resistance of Toncan iron. It can be supplied in all base weights and sizes.

The Cleveland Brass Mfg. Co., Cleveland, is now sending out material on its acimet valve for sulfuric acid handling. Plant superintendents, maintenance engineers and chemical engineers whose routine covers the handling of sulfuric acid or other corrosive liquids will find the data valuable. It is prepared in a special folder to fit an ordinary file drawer.

* * *

Merco Nordstrom Valve Co., San Francisco, has published a 172-page catalog illustrating about 30 types of Nordstrom lubricating plug cock valves. These valves are made in various metals for handling various kinds of liquids, semi-liquids and gases, both neutral and acid. The catalog also describes steam-jacketed valves, remote control valves and types with multi-ports, both in low and high pressure. Bronze, aluminum and Mercalloy are the metals used in the valves for handling corrosion-resistant liquids.

Estimated Trends of Consumption

Figures in Thousands of Barrels

	Industrial			Automotive Oil				Total Lubricating Oil		
	Trend	Actual	Per cent + or —	Trend	Actual	Per cent + or —	Gaso. to Auto. Oil Ratio	Trend	Actual	Per cent + or —
1923	9,562	9,881	+ 3.34	7,275	7,379	+ 1.43	21.2	16,837	17,260	+ 2.51
1924	10,613	10,163	— 4.24	8,000	7,961	— 0.49	23.2	18,613	18,124	— 2.63
1925	11,664	11,713	+ 4.20	8,711	8,868	+ 1.80	25.2	20,375	20,581	+ 1.01
1926	12,715	12,957	+ 1.90	9,431	9,611	+ 1.91	27.2	22,146	22,568	+ 1.91
1927	12,455	11,485	— 7.79	10,028	10,184	+ 1.56	29.2	22,483	21,669	— 3.62
1928	12,195	12,648	+ 3.71	10,625	10,520	— 0.99	31.2	22,820	23,168	+ 1.52
1929	11,935	12,182	+ 2.07	11,222	11,322	+ 0.89	33.2	23,157	23,504	+ 1.50
1930	11,675	10,269	—12.04	11,819	11,319	— 4.23	35.0	23,494	21,588	— 8.11
1931	11,415	10,000*	—12.40	12,416	11,300*	— 9.00	36.2	23,831	21,300*	—10.70

*Estimated

Lubrication of Automotive Engines With Mid-Continent Oils*

By E. R. Lederer[1] and E. W. Zublin[2]

PART 1

INVESTIGATORS are concentrating efforts on the study of the relation between physical and chemical properties of lubricants and their performance under different service conditions. The progressively heavier demands made on lubricants by changes in the design and operation of internal combustion engines make it imperative for lubricant manufacturers to learn more of these relationships from the practical standpoint.

Valuable information is given herein on the relationships between viscosity, viscosity index, pour point, pumpability, etc., and channeling, film rupture, etc., under service conditions. It is one of a series of articles by different authors on th's general subject.

National Petroleum News invites comment, experimental data, and discussion on these subjects which will add to the sum total of information available to the technologist on this ever-increasing problem.

IN DISCUSSING the lubrication of any piece of apparatus with some particular oil or type of oil the discussion must necessarily be based on a comparison with other oils of different nature. This paper presents comparative data and discussion on the relative value of paraffinic Mid-Continent vs. Eastern oils, only one Gulf Coast or naphthenic oil being included in one of the series of tests. The term "Mid-Continent oil" will hereafter be used exclusively for lubricating oils derived from paraffin-base Mid-Continent crudes by any one of the known refining processes, with exception of hydrogenation and aluminum-chloride treatment.

Performance, physical tests and specifications are inter-related. The manner and degree of this inter-relation has been the subject of much discussion carried out by the best informed and best qualified men in the oil and allied industries. The conclusion has been reached that the most important single property of lubricating oils is their viscosity at operating temperature.

There is an optimum range of viscosity and anything above or below this range is unsatisfactory, or even dangerous. The exact limits are not known; they differ considerably with the design of the engine. Generally speaking, oils of low-viscosity temperature coefficient permit a wider temperature range of safe and satisfactory performance than those of high-temperature coefficient. The upper viscosity limit appears to be determined by the resistance to starting at low temperatures, and the lower limit is set both by film rupture due to lack of "body" on the one hand and to "oil consumption" on the other.

Either excessive resistance to cranking or lack of oil circulation, or a combination of both may result in unsatisfactory performance at low temperatures. It is known definitely that viscosity and pour point are two of the measurable properties of the oil that create the above limitations. There is some uncertainty however, in regard to their relative influence.

Viscosity affects performance at any temperature, while the pour point comes into action at temperatures only below its own figure. The difficulty in determining the relation between performance and a combination of viscosity-pour at subpour temperatures is that different types of equipment yield different results.

It has been found that in automobiles employing screens at the intake of oil pumps oil circulation stops at temperatures of from 10 F. above to 10 F. below the pour point of the oil. The exact temperature depends upon the mesh of the screen. In airplanes, where the oil-distribution system is quite differently arranged, it has been claimed that the effect of the pour point becomes noticeable only at 15 to 20 F. below the A. S. T. M. pour test.

As H. C. Mougey pointed out recently, crank-case dilution in winter increases both ease of starting as well as oil circulation, and that the entire problem of cold-weather lubrication of automobiles is not nearly as serious as a study of the literature makes it appear. In fact, crank-case dilution is apt to reduce the viscosity of oils so much as to make the difference between two oils of, say, 80 and 100 viscosity indexes appear negligible. Leading piston rings on the other hand cause an accumulation of oil around the piston rings and accentuate the difference in resistance to starting.

Tests on a four cylinder Chevrolet engine with a 68 and a 102 viscosity index oil showed a load increment of about 30 per cent for the 68 index oil over the running load of the 102 index oil, while the breakaway torque at temperatures below the pour point of the latter were slightly higher for the 102 viscosity-index oil. Excess oil on the pistons raises the load three to four times its initial value, while priming reduces this again to one-third or less, depending upon the amount of gasoline mixed with the oil.

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*Authors' extract of a paper delivered at the Lubrication Meeting of the Petroleum Division, American Society of Mechanical Engineers, at State College, Pa., May 22, 1931.

1-2—Texas Pacific Coal and Oil Company.

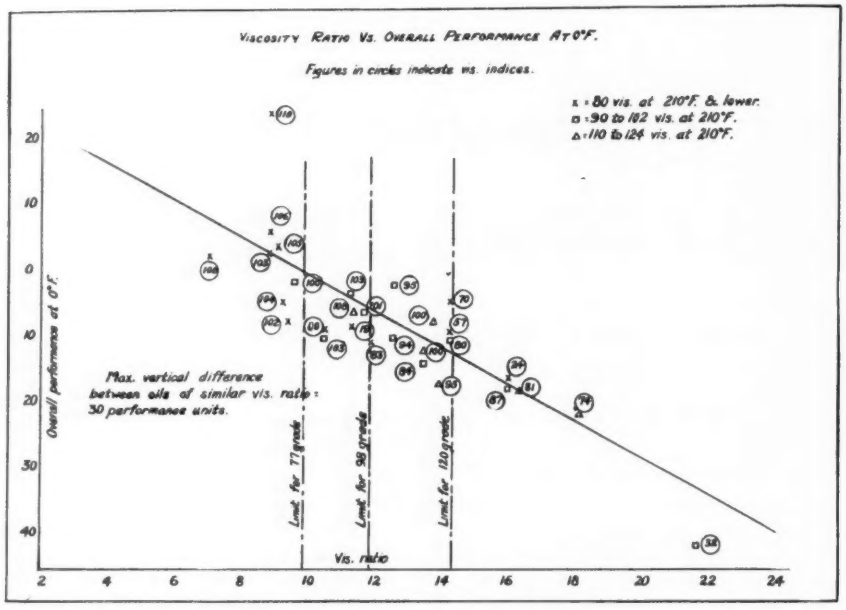


Fig. 1—Viscosity Ratios Plotted Against Overall Performance at 0° F.

It may be stated that, in the average, the smaller viscosity index is accompanied by greater starting torque other factors being identical; however, differences found on comparing medium and high-viscosity index oils (which represent mid-continent and eastern oils) are small in comparison with the difference introduced by dilution, priming, and leaking piston rings.

Somewhat different is the aspect when airplane lubrication is considered. Due to more volatile fuel and hotter engines dilution rarely ever reaches a high degree, and viscosity and pour remain more nearly the same in operation than they do in automobiles.

Low-temperature performance is composed of two main components, resistance to starting and oil distribution. In order to evaluate the low-temperature performance it is necessary to weigh the two components against each other so that experimental data can be placed in numerical relationship.

There has been considerable argument about the question: "Which is more important, ease of starting or oil distribution?" There is no doubt that the relative importance of the two faculties depends upon the use of the engine. Army airplane engines that must be started at a minute's notice require oils with a greater ease of starting than airplane engines used for commercial planes; while safety, which depends upon oil distribution, is more important for the latter.

Numerically this can be expressed by selecting the units of measurement, so that by subtracting the one component from the other, zero is obtained for oils considered at the border line of being satisfactory.

Thus: Performance = Distribution — Resistance; or, P = D — R. The greater P is, the better is the oil performance. If values of P for many oils are plotted against the proper combination of their physical properties that determine their low-

Table 1

Experimental Data Obtained by E. R. Irwin

Performance @ 0°F.

Oil	Vis. @ 210	Vis. @ 100	Vis. @ 0 10'x	Vis. Ratio	Vis. Index	Pour	V.R./ Pour / 5	Vis. @ 210 /(100 —V.I.)	Vis. @ 210/(100 —V.I.)/ Pour	Flow Lbs./Min.	Breakaway Load, Lbs.	Running Load, Lbs.	Pour
4	79	710	11.5	8.98	106	15	12.0	73	87	1.11	32	13	*6.6
5	78	1,120	23	11.43	103	20	15.4	95	114	.39	51	24	— 3.6
6	120	1,630	43	13.58	100	25	18.6	120	145	.....	80	37	—11.7
8	58	485	16	8.36	70	15	11.4	88	102	1.45	.....	.....	.....
9	80	750	12.5	9.37	104	20	13.4	76	96	.46	62	28	— 4.4
13	100	1,180	22	11.80	101	10	13.8	99	110	.31	60	28	— 5.7
14	59	680	65	11.53	19	0	11.5	140	140	.32	75	40	— 8.3
18	68	490	5.6	7.20	108	10	9.2	60	70	.58	27	8	*2.3
19	88	850	15	9.86	100	10	11.6	88	98	.49	42	18	— 1.1
20	110	1,280	23	11.64	108	15	14.6	102	117	.25	51	29	— 5.5
21	124	1,720	46	13.88	100	15	16.9	124	139	.16	78	38	—10.6
24	120	2,200	140	18.33	74	40	26.3	146	186	.....	135	76	—20.9
26	62	400	4.0	6.54	110	25	11.5	52	77	.75	.....	.....	.....
27	78	720	14	9.20	105	10	11.2	73	84	.94	38	16	*4.0
28	60	700	60	11.67	22	0	11.7	158	139	.32	.....	.....	.....
30	100	1,270	30	12.70	94	25	17.7	106	131	.10	74	35	— 9.9
34	74	1,200	140	16.20	24	10	18.2	150	158	.17	110	66	—15.9
35	115	1,620	51	14.08	95	40	22.1	120	159	.0	120	41	—16.1
39	105	2,400	330	22.86	32	20	26.9	173	193	.....	270	140	—41.0
41	77	680	11.5	8.96	110	35	2.0	67	32	2.8	29	10	*24.1
42	75	670	12	8.94	103	10	10.9	72	82	.82	36	14	*3.2
43	102	1,300	31	12.74	95	5	13.7	107	107	.65	59	33	— 2.7
44	80	920	30	11.50	84	5	12.5	96	101	.46	62	28	— 4.4
47	92	980	19	10.64	103	40	18.6	89	129	.09	83	27	—10.1
48	80	770	14	9.62	102	35	16.6	78	110	.15	75	17	— 7.7
49	97	1,400	53	14.43	80	10	16.4	117	127	.19	86	35	—10.2
50	121	1,950	82	16.11	87	10	18.1	134	144	.08	110	71	—17.3
51	80	1,150	70	14.37	57	10	16.4	127	133	.30	46	46	— 9.7
52	83	1,000	33	12.05	83	25	17.1	100	125	.17	88	36	—10.7
53	95	1,295	41	13.58	84	25	18.6	111	136	.09	106	40	—13.7
54	115	1,900	92	16.52	81	25	21.5	134	160	.....	127	57	—18.0
55	72	770	28	10.70	80	25	15.7	92	117	.20	73	31	— 8.4

temperature performances, all points should follow some curve or at least adhere closely to it. The closeness of adherence of the various points to the curve is a direct indication of the correctness of the tests and their combination.

In order to carry out such computation, data on many oils obtained under identical conditions are required. Such data have been obtained by E. R. Irwin, Aero Chemist, Material Branch, Aircorps, Dayton, Ohio. The empirical formula applied to them to calculate P was:

$$P = 10 \times \frac{\text{Flow} - \text{Breaking} + \text{Running Load}}{10}$$

The value for P, calculated by the above formula, for oil No. 19 in Table 1 is-1.1. Oil No. 19 is fairly satisfactory. P values range from minus 41 to plus 24. If P values are plotted against viscosity ratio alone the picture shown in Fig. 1 results. The maximum difference between two performances of oils of similar characteristics is 30 units. If, on the other hand, P is plotted against the combination of pour and viscosity ratio:

$$\text{Viscosity Ratio} + \frac{\text{Pour}}{5}$$

as shown in Fig. 2, the maximum difference of P for oils of similar characteristics is only 10 units. Similar is the comparison if, instead of viscosity ratio a combination of viscosity at 210 and viscosity index, on the one hand, and viscosity at 210, viscosity index and pour, on the other hand, is plotted against P: Viscosity at 210 + (100 — V.I.) yields a maximum difference of 28 performance units, while with
Viscosity at 210 + (100 — V.I.) + Pour
this value is reduced to a maximum of 9.6 performance units.

The data furnished by Irwin, in the light of the present computation, indicate that both, viscosity ratio (or viscosity index) and pour influence low-temperature (0° F.) performance. Assuming that oil distribution and resistance to starting are of equal importance, it is found that (within limits) the raising or lowering of the viscosity ratio one point has a similar effect as raising or lowering the pour point 5 to 7° F. at temperatures below the pour point of the oil. This does not include oils of extremely low viscosity indexes.

(To Be Continued)

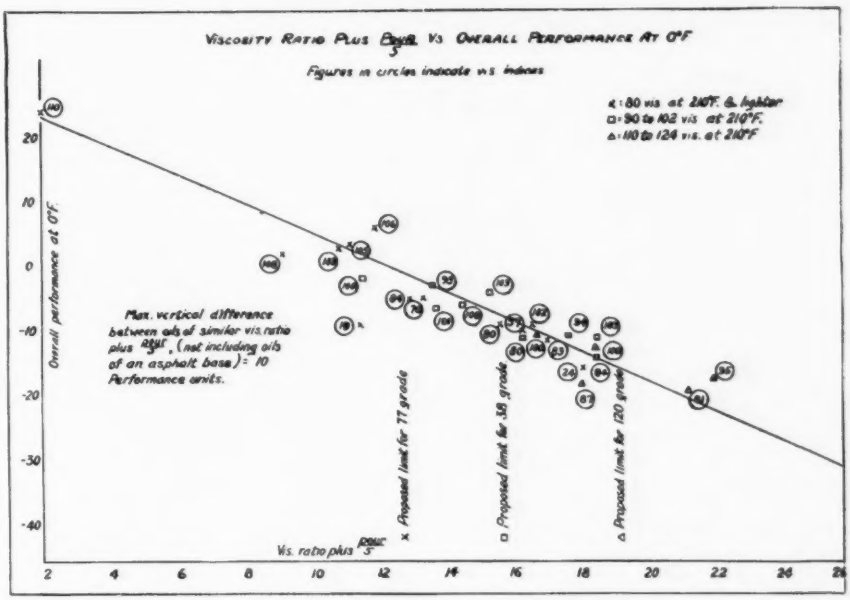

Viscosity Ratio Plus Pour/5 Vs Overall Performance At 0°F
Figures in circles indicate v.i. indexes
x: 80 vis. at 210°F. & lighter
□: 90 to 102 vis. at 210°F.
△: 110 to 124 vis. at 210°F
Overall performance at 0°F.
Max. vertical difference between oils of similar vis. ratio plus Pour/5 (not including oils of an asphalt base) = 10 Performance units.
x Proposed limit for 77 grade
□ Proposed limit for 98 grade
△ Proposed limit for 120 grade
Vis. ratio plus Pour/5

Fig. 2—Viscosity Ratio Plus $\frac{\text{Pour}}{5}$ Plotted Against Overall Performance at 0° F.

Dr. Edeleanu Celebrates Seventieth Birthday

CLEVELAND, Sept. 24.—Dr. L. Edeleanu, inventor of the sulfur dioxide process for treating kerosine and lubricating oils, received congratulations from many friends in both the old and new worlds on his 70th birthday, Sept. 14.

Dr. L. Edeleanu

Rated as one of the world's outstanding petroleum chemists, Dr. Edeleanu is well known among refinery chemists and operating men in this country through the installation of his process in many American plants.

In addition to the sulfur dioxide process, in perfecting which he spent 20 years, Dr. Edeleanu is credited with being the first man to apply high vacuum to the distillation of lubricating oils.

Dr. Edeleanu was born in Bucharest, Sept. 14, 1861, taking his doctor's degree in that city in 1881. In 1883 he went to Berlin, where he studied chemistry, obtaining his doctor's degree in 1887.

For about two years, he was assistant and lecturer at the Royal Artillery College in Woolwich, England, teaching chemistry to officers, an unusual honor for a foreigner.

By special permission of the Rumanian government, Dr. Edeleanu, in 1904, became scientific adviser and refinery director for the German Diskonto Gesellschaft, while at the same time he held the position of head of the state laboratory.

Although Dr. Edeleanu is best known for his work in petroleum chemistry, he has been an important contributor in other fields, especially the tanning and viscose industries.

New Refining Patents

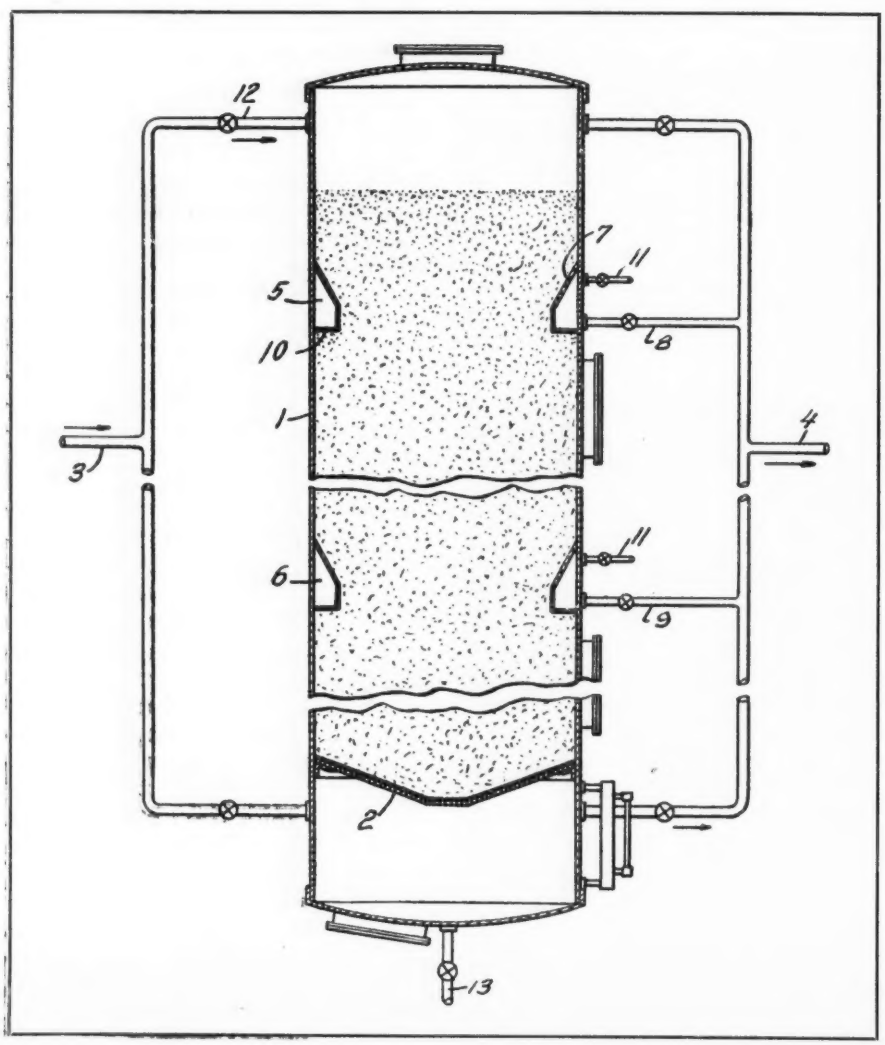
Vapor Phase Refining. U. S. P. 1 812 446, June 30, 1931, application filed Feb. 10, 1928; Wm. Mendius, assignor to Sinclair Refining Co.

THIS invention relates to a method of attaining uniform operation in the catalytic polymerization method of refining cracked gasoline. It has the same object as U. S. P. 1 812 426 (see abstract, this page); but the method employed depends on a different principle. Whereas U. S. P. 1 812 426 utilizes variable dilution of the vapor with an inert gas to compensate for changes in catalyst activity, this invention varies the length of path traversed by the vapor in contact with the catalyst, to accomplish the same purpose.

Variable length of path is provided in a tower (see drawing) having a perforated partition 2 near its bottom to support the catalyst but permit vapor passage. The vapors to be refined enter at 3 and are withdrawn at 4. In operation, the vapors may be passed either upward or downward, or alternately upward and downward. For downflow, which is especially advantageous, the vapor enters by pipe 3 and valve 12 and, for a short length of path, is withdrawn through one of the auxiliary outlets 5, 6 etc. which are arranged at spaced intervals through the tower. Each of these outlets has an annulus 7, admitting vapor but excluding catalyst, and controlled connections 8, 9 etc. to the outlet 4. Perforated screens for gas passage are placed at 10, and steam connections 11 permit purging the space under any annulus 7. By means of these auxiliary outlets, the vapor path and hence the degree of exposure to catalytic action can be increased or decreased as catalyst activity changes.

What is Claimed

Apparatus for contacting hydrocarbon vapors with an adsorptive catalyst, comprising a receptacle with catalyst support which maintains the catalyst level above that of the auxiliary connections, means for feeding vapor to one end only of the receptacle, discharge means at the other end, and a series of auxiliary vapor connections with valves, along the normal path of vapor travel through the catalyst.



* * *

Refining Cracked Distillates. U. S. P. 1 812 426, June 30, 1931, application filed Feb. 29, 1928; Frank A. Apgar, assignor to Sinclair Refining Co.

IN THE catalytic polymerization method of removing gum-forming unsaturated components from cracked gasolines, much difficulty is introduced by the high range of variability in the activity of the fuller's earth or other absorbent catalyst. The initial activity is excessive, tending to cause over-polymerization at such a high rate that the exothermic reaction brings about an objectionable temperature increase. This excessive initial activity causes losses both in yield and in quality of product, and makes it extremely difficult to achieve uniformity in operation.

It has now been found that this difficulty can be overcome by suitably controlled dilution of the incoming hydrocarbon vapor, so that the initial action of the adsorptive catalyst is moderated. As catalyst activity decreases, the dilution is changed accordingly and so the effect of the treatment on the vapors under treatment is readily kept uniform. Steam is one of the cheapest and best diluents for the purpose; but vapors of saturated hydrocarbons, e.g. light oil vapors, may also be used. Apparatus for a different method of attaining uniformity is covered in U. S. P. 1 812 46.

What is Claimed

In vapor phase refining of hydrocarbons by catalytic polymerization, the improvement comprising passing the vapors through the absorptive catalyst in admixture with an inactive gaseous diluent and controlling the ratio of hydrocarbon vapors and diluent to compensate for increases or decreases in the activity of the absorptive catalyst.

COPIES of United States Patents can be obtained at 10 cents each, payable to the Commissioner of Patents, Washington, D. C. Coupons, good until used, are sold in books of 100 at $10. Photostat copies of foreign patents (if not of too recent date) can be obtained from the Commissioner of Patents at prices (payable in coupons if desired) which will be quoted on application.

ADVERTISING PAGES REMOVED

Community house on a Russian collective farm

Experiences of an American Engineer in Russia

By George A. Burrell*

Part 9

ASIDE from the youth movement whereby children are being taught and are enthusiastically absorbing the Communistic creed, I would say that the most important accomplishment of the Soviet Government to date has been the collection of small farms into huge ones and the operation of them upon Communistic principles and with modern farm machinery. The April 15, 1931, number of the "Economical Review of the Soviet Union," an Amtorg publication, says that up to March 10 of this year, 37½ per cent of the peasant families of Russia had been collectivised. The highest was in our district, the north Caucases, 77 per cent, and the lowest was in Daghestan, a tribal region adjoining us, 11 per cent.

It was only 70 years ago that Alexander II freed about 11,000,000 serfs from landlord rule. But they were given the worst land and made to pay dearly for it, and were taxed heavily. But even in 1917 about one-fourth of the land was owned by 200,000 landlords. Huts the peasants lived in, and still live in, were and are miserable quarters. Villages possess no paving, lights, sewers, or water system, except as the collectives have made a start in improving conditions.

The peasant numbers 80 per cent of the Russian population, was illiterate, poverty stricken, and superstitious before the revolution, has pursued the same primitive methods of living and working through the centuries, and methods adapted to radically change him to new ideas and methods, have been the most baffling and perplexing problems that have confronted the government. A huge unwieldy, almost immovable, mass of about 120,000,000 people had to be persuaded or coerced.

Leading Bolshevik slogans that swept the country when control was wrested from Kerensky and the White Army were "Land for the Peasants" and "Factories for the Workers." Land was given outright to the peasants and the factories operated under full control by the city workers; the proletariat. But neither scheme worked out well. Factory control has been abridged considerably and will be still further curtailed in my opinion. The farms had to be divided into such small increments to provide for everybody that little progress was made. Antiquated farm machinery was retained.

Therefore, the government embarked upon a plan of grouping the small farms into large ones and the importing of immense quantities of tractors and modern agricultural implements. At the present time the grouping of farms takes the form of:

(1) So-called communes in which all resources are united and communal dining rooms, kitchens, nurseries, laundries, etc. are established.

(2) Partnerships in which peasants with their small individual holdings are grouped in joint cultivation of the land, the peasants retaining their own homes, tools, horses, etc.

(3) Artels in which the peasant holdings are also grouped, but where each family retains possession of its home and small livestock.

The first plan is the favorite method of collecting the farms. Here control of everything and everybody is exercised and the ideals of the Communistic form of living can be better executed. At one of them, I was told, the workers receive in addition to a share of the crops, about one rouble per day, one-third of which is used for the kitchen. A nursery, then a kindergarten, and finally a school, receive the

*Burrell-Mase Engineering Co., Pittsburgh, Pa.

children. The most likely ones are to go on to a university. Taxes are low. Parents and children are in their homes only at night.

It goes without saying that the government has encountered a multitude of difficulties in collecting the farms. The peasant is an individualist and no idealist. He wanted his own property, little as it was. He was by no means sure of the outcome of the new plan, and in many cases fought the movement desperately.

Particularly did the more well-to-do peasants obstruct the program and harass the government. These peasants are called Kulaks. The latter, through diligence, ability, cleverness, or opportunity, or whatever the reason, acquired a little more land than the average peasant, perhaps a few more cattle, or they may have one or more people working for him; the latter a deadly sin in the eyes of the Communistic doctrine.

THE Kulak opposed collection of the farms by all means in their power and were leaders in the slaughter of live stock that followed the government's order that all excess cattle be confiscated. For instance, not more than three cows could be retained, or a small number of pigs, or horses, and so on. There occurred the greatest decimation of live stock in history as the peasants killed them and ate, or concealed, or sold the meat to prevent confiscation by the government.

Consequently a drive was made to "liquidate the Kulak," as their extermination is called, and I suppose that history records few episodes of a more heartbreaking character than the treatment meted out to them. Their possessions were confiscated and many were ruthlessly bundled off to the lumber forests of the north. They were frequently herded in box cars, sometimes given little food and water, and little clothing, and shipped, under deplorable circumstances, out of the way. Poor people, what an experience has been theirs.

Other methods than the harsh ones applied to the Kulaks have been employed to persuade the peasants. Enthusiasts have gone from the towns into the villages presenting their arguments for collectivisation. A beginning or extended experiment made in a nearby district has been held up as an example, or methods of coercion, mild compared to those applied to the Kulaks, have been adopted. In the latter case a peasant family may find itself without kerosine, or the village co-operative store may be barred to it, or schooling facilities not extended, etc. He has no voice or vote in the affairs of the community, and no trade-union card. Altogether the obstinate ones may endure an unhappy time.

It is not uncommon to see a collective on large scale operation with modern tools, while nearby may be small tracts worked by individual peasants with wooden plows, sickles and wooden flails.

I recall a village in the North Caucasus, located on a collective farm where nothing was left of the houses except the foundations, and was told that tractors had been driven through the village with chains tied between them. Just why the village had been destroyed I did not find out. Possibly after the inhabitants had moved to the collective this method was adopted as a simple means of eliminating the village, but I was told by an American tractor expert that it disappeared as a result of some coercion or retaliation measure on the part of the government.

IN MANY cases, of course, the peasants have gone willingly into the collectives. In other cases coercion was applied. It is also true that many who unwillingly entered found things satisfactory after they joined. Others are still dissatisfied. Of course some would complain no matter what happened. This is true of some people in every land.

Some collectives have gone far ahead of others in their development. Their management may have been better or the land particularly fertile or they may have been started much earlier than others. Some represent real successes; others have only made a beginning, and in some sections no collectives prevail at all. Farm machinery is not abundant enough yet to do all that is to be done, and leaders have been scarce.

At one stage the collective movement developed into one where so much force was used that many failures, or near failures, resulted. Resisting peasants thwarted the government in every way in their power. One of their means, as already stated, was to kill off their live stock. Then Stalin issued his now famous letter of March 15, 1930, in which he said that authority had been often exceeded by the leaders in forcing the peasants. He said that the former had become dizzy with success, and forbade anything but voluntary collectivisation. But this move has generally been regarded as a shrewd one to displace responsibility from the government's shoulders, and put it on over-zealous workers in the districts. Certainly the government knows every move of consequence that takes place, and was and still is, cognizant from the start of all of the activities of its agents.

I BELIEVE that the largest collective in Russia comprises 700,000 acres, called the Giant Farm. Great numbers of peasants visit it to see how the new scheme works. One near Grozny had 125,000 acres. Collectivisation, by the way, has reached its greatest success in our district, the North Caucases district. Here 74 per cent of the families have joined them.

I examined the one near Grozny and have seen others, although only casually, in operation. The people live their community life in a long wooden shed-like building. A photograph is shown herewith. A school and lecture hall is provided, and a reading room. An important building was the tractor repair shop. I remember a stout girl who was pointed out to me as being the best tractor mechanic.

A tractor expert from the United States was in charge of this department. He said that tractors only lasted one-fourth as long in the hands of the Russians as they did in America. But a representative of the Case Threshing Machine Co., of America, said about one-third as long. He pointed out, however, that tractors were operated in shifts and got twice the

work that American ones do. I have many times been startled with the speed at which the average Russian driver puts his car over the rough Russian roads. Nor does he spare the tractors in this respect. I can easily imagine that the wear and tear on them is greater than in America.

A Russian boy, a graduate from a Russian agricultural school, guided the scientific end of the enterprise.

I also went out in the fields, some ten miles away, where workmen were plowing the fields. Here families lived in tents under conditions we would call deplorable, and came into headquarters once a week.

The whole collection of buildings constituted a shabby looking outfit and the people were as illy dressed as all peasants, but by comparison with the average uncollectivised Russian village it represented a distinct advance. Moreover there was much evidence of lots of hard work. Winter wheat was waving in the fields and vast areas of plowed and harrowed ground could be seen.

There is no question in my mind but what these collectives are increasing the productivity of the soil, cheapening costs, and are producing better products, and also raising the standard of living of the peasants. Illiteracy is being reduced and better living quarters are provided even in the present early stages of the work. We would say that they are still away below those in America, but in many cases much of the former miserable low standard of existence of the people has been raised. Seed is better selected and the ground plowed deeper. Better rotation of crops is practiced and modern farm machinery is introduced as fast as it can be secured. I am told that Russia needs 900,000 tractors against about 50,000 in use now.

Storage and transportation of the grain has been a problem, and much waste, delay, spoilage, and mismanagement has occurred, but better facilities and leaders are being provided all the time.

Amtorg* says that in the collectivised farms the average acre sown per household was

*Economic Review of the Soviet Union. April, 1931.

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5.2 hectares for the 1930 spring sowing, as against 2.7 hectares for individual peasants, and that the average income was one and a half times as great. Further, that 62 per cent of the country's grain was harvested by the collectives. The government is now independent of the individual peasant for its supply of bread. This was a big objective, and it has been attained. Otherwise a famine threatened the cities. But if one could follow all the heart breaks that occurred in the wake of this achievement a tale would be unfolded even more startling than those that have already come out of Russia. But there is no question that by peaceful methods the collection of the land would have required ten years or more, and the government couldn't wait this long. For one thing bread was too badly needed.

ONE cannot appreciate the importance of bread in a nation's life until one goes to Russia, and I suppose other peasant countries. Huge chunks of it are in sight all the time. It is truly the staff of life there. No matter what else a Russian may have on the table, the latter is not complete without bread.

A modern bakery was completed in Grozny while I was there. It turns out 40,000 loves per day, and was efficient and clean. A chemist watched the quality of the bread. It produced loaves of a different shape than the hand bakeries, hence some of the people of the town were prejudiced. But Mrs. Burrell told our maid that it was better bread than the old loaves. Thereupon the news spread that the Americansky lady approved it, and this helped establish it in favor.

We visited this bakery and were willingly shown it from top to bottom. Then we were conducted into a conference room and asked our criticism of it and how it compared to American bakeries and how it could be improved. Unfortunately my knowledge of bakeries is too limited for me to discuss this intelligently, but I did the best I could and stated that it looked fine to me; which it did. After every visit or inspection I made to the schools, hospitals, factories, etc., I was asked my opinion of conditions and to present my criticisms. I learned that the requests were not perfunctory ones to please me, but that the directors were intensely interested in my comments.

Russia needs funds so badly that world wheat prices will undoubtedly be low as she disposes of her crops. Later when standards of living are raised in that country, and this is a goal of the Communists, her costs of production will be higher, but even then the rest of the world will have to face a vast co-operative union of all the farmers of Russia, and the harvesting of her crops with modern machinery and up-to-date methods. In addition Russian wheat enjoys a reputation for high quality. About 10,000,000 bushels a month are now exported according to Amtorg.

"Last year Russia produced a little over one billion bushels of grain. Before the war she shipped 165,000,000 bushels a year. For the last season the United States shipped 115,000,000 while Russia only shipped 93,000,000 bushels."

Perhaps my readers will be interested in a visit some of us made to a Russian peasant village one autumn evening. Farmers in Russia, like in other European countries, do not live in homes scattered over the countryside, but in small villages in the center of the area they till. We had motored about 30 miles to catch a train but discovered that it was about 9 hours late. I would not let the motor cars go back until the train arrived for I feared a long wait and possibly no train at all until morning, in which event we would have returned home.

The drivers of the cars became hungry after some hours wait. Hence we repaired to a small Cossack village to get some food. It was dark when we entered the village. At first nobody appeared, although, of course, everybody knew that four automobiles had arrived. It later developed that they feared some reprisal act on the part of the O. G. P. U. for violation of some section of the government code. Finally an old man, a patriarch of the village, appeared and extended the hospitality of his home, a small two room hut. This we entered and asked him to cook some chickens for us. At first he demurred, saying chickens or nothing else could be killed without consent of the authorities. But he was assured that an exception would be made in the case of Americans.

In due time there appeared on the table two roast chickens, some macaroni, bread, and some wine; with no plates or knives and forks. Hence we adapted ourselves to the peasant style and ate from the common dishes with our fingers.

Then the head of the household made a speech and toasted us each in turn with many references to America. Finally he became intoxicated. A girl came in with an accordian, more villagers crowded into the house, and others peered in through the windows. The old grandmother of the family outdanced everybody with a remarkable performance. We left, after depositing 30 roubles, with the blessings of the family and an urgent request to come again soon.

SPEAKING of dancing, that and music, are in the blood of the Russian people. Fine performances are given in the Moscow theatres, especially the Bolshoi theatre, and the development of these arts are given strong encouragement by the government. Low admission prices are charged workers and students. The famous royal tier of seats in the big opera house of Moscow, in which the wealth and nobility of Russia once ensconced itself, presents a different sight these days.

An effort is made to weave Communism into the new songs, plays and ballets, and, of course, into the literature of the country. Once, while waiting for a train, we persuaded some nearby peasants, curiously gazing at us, to dance for us. Round and round they went in their tattered clothes and bare feet, on rough cinders, and in rhythm to an accordian played by another Russian.

(To Be Continued)

Lighting the Service Station

Suggestions for Illuminating One-Stop Station on 60 by 118-Foot Lot to Attract Night Trade

By F. E. Carlson

IN THE July 1 issue of the NATIONAL PETROLEUM NEWS there appeared a suggested service station layout for a particular lot. This was specific and complete as to all facilities of the modern station, except lighting. Light plays such an important role in station operation as to form a story in itself. In this article a lighting scheme is developed for the same ground plan and station layout so far as this can be done with the elevation undetermined. (In a large measure this must determine the character of a given installation).

Attraction lighting for service stations is a necessity if the marketer wishes to take advantage of the increasing night traffic on the streets. But potent as light always is, its full value cannot be realized except by careful planning to avoid crudities, to expedite service, and to leave a distinctive impression.

If operation during the evening hours is worth while, the lighting system merits just as much planning and careful study as the layout of the service areas and the planning of the station elevation—a service station may be quite conspicuous during the day, but at night, only the well lighted station can dominate the roadway or city block. It can be made even more impressive and inviting than by day.

Light may be used as a building element to produce a service station structure having that distinction which its modern character and function demands. This subject was discussed in a previous article[1] by the author.

[1]NATIONAL PETROLEUM NEWS, June 10, 1931. Page 65.

THIS article supplements one published in National Petroleum News for July 1, page 65, on a layout for a complete service station on a lot 60 x 118 feet. The first article was an answer to an inquiry for suggestions for a layout on such a sized lot and for various points about constructing and equipping the station.

F. E. Carlson of the engineering department of General Electric Co., Nela Park, Cleveland, tells in this article how the station and the yard may be effectively lighted. The article, while applying specifically to the station to be built in a southern city, provides abundant working suggestions for planning a lighting system for any service station.

Tables I and II are particularly valuable in giving service station operators a key to good lighting practice and equipment.

Yard Lighting

The fundamental requirements for good service lighting are, that it shall be of sufficient amount, free from bad shadows, and not glaring. The first requirement, sufficient light, is affected by the location of the station, (Table I); if it is located on a brightly lighted, heavily travelled thoroughfare it must be more brightly lighted than if it is on a less busy thoroughfare where there may be little competing brightness.

The elimination of bad shadows is simply a matter of directing light from a sufficient number of different locations, so that all parts of the yard area are lighted from more than one direction.

Glaring light sources in the field of view radically reduce the ability to see; much of the effectiveness of the lighting may be lost, due to this subtractive effect. Glare may be minimized by using units of moderate power, or by mounting large units high above eye level. It is well, therefore, to study carefully the probable flow of traffic within, as well as to and from, the yard, area, as indicated in Figure I. In this case it is evident that all desirable locations for lighting standards are in line with some lane of traffic. We therefore have a choice of relatively small equipments of the street lighting type, or a few high-wattage floodlighting units mounted 25 feet or more above the ground.

The choice between these is influenced by a number of factors (see Table II). Since practically all of this yard area is within 30 feet of the lighting standards the logical selection is the pendant type of street lighting unit which may be mounted relatively low without causing undue glare. Both the upright type of street lighting unit and the ornamental floodlighting luminaire (which is an upright type street lighting unit equipped with a reflector) may also be mounted fairly low, but they are not as satisfactory for lighting the ground close around the base of the standard.

The street lighting units should be equipped with refractors which intercept the light, which would otherwise go upward, and redirect it to useful areas. The symmetrical type of refractor distributes this light uniformly in all directions below the horizontal; the asymmetric type directs a large portion of the light in a particular

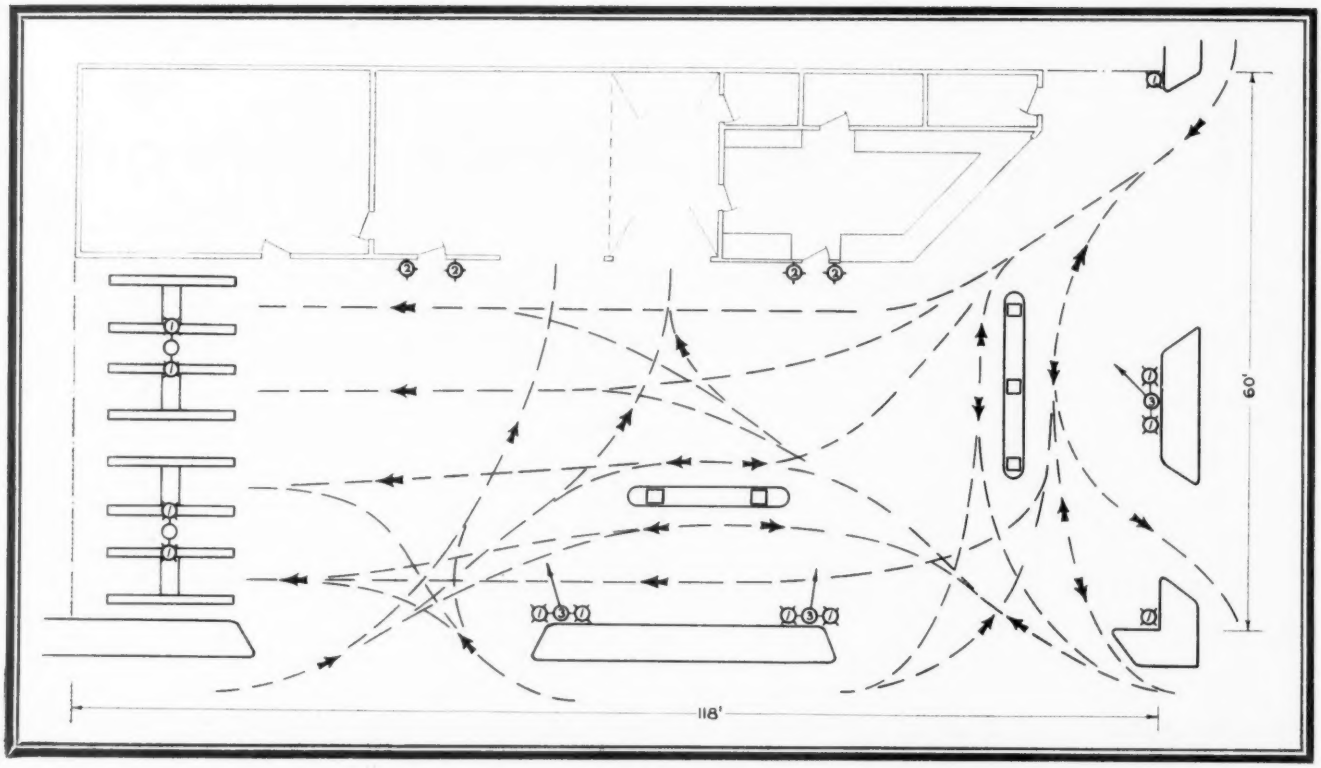

Fig. 1—How outside of suggested station layout should be lighted. Numbers in drawing are keys to types of equipment listed in Table I. Dash lines indicate traffic channels in and through the station

direction, so that, for example, the light may be directed below the horizontal and toward one side. Such a refractor may be used to advantage around the boundaries of the yard area. The symmetrical type of refractor is often used on pump islands or along the boundary of the yard area on the street side, when additional light on the street has considerable attention value.

For this particular station the lighting standards are necessarily around the boundaries of the yard area. With no other lighting, shadows would be quite evident. Additional light should therefore be provided from the station side of the yard. This can be obtained from ornamental units on either side of the station entrances. These may be of the same general design as the pendant units used on the lighting standards and may be supported from ornamental brackets.

Fig. 2—A standard of this type can accommodate both floodlighting and pendant type street lighting units at their required mounting height. On locations where floodlights are not required, the standards may be shortened and still present a balanced appearance to the yard as a whole

Station Exterior

The exterior of the station may be floodlighted from projectors mounted on some of the yard lighting standards of a type such as illustrated in Figure 2. The beam of light from a floodlighting projector is round. To light a long, low building with beams of this type would require a relatively large number so that the spots from each would overlap and the result be fairly uniform. The number of projectors will be materially reduced if they are equipped with fluted lens or cover glasses—commonly called "spreadlight lenses." These lenses spread the round beam of light out in a fan-shaped manner somewhat similar to the headlights on automobiles.

The standards on which these floodlights are to be mounted should be selected with due consideration of the flow of traffic through the yard. The locations indicated in Figure I should cause the least glare.

The open-type of floodlight may be used if stray light is not likely to prove annoying to tenants of adjoining property. However, this type of equipment can not be equipped with spreadlight lenses, and, as indicated in Table I, is not generally as satisfactory as the

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Table I—Suggested Equipment for Service Station Lighting

For Position of Outlets See Figures I and III

Outlet	Service	Type of Equipment	Recommended Lamp Size			
			Large Cities		Small Cities	
			Main Thoroughfares	Outlying Districts	Main Thoroughfares	Outlying Districts
1	Yard	Pendant type street lighting unit equipped with symmetrical dome refractor. Globes of opalescent, stippled, or rippled glass. Mounting Height—from 16 feet for 150-watt lamp to 20 feet for 500-watt lamp.	500	300	300	150 to 300
2	Yard & Bldg. Exterior	Pendant type street lighting globe as above supported by ornamental bracket on side wall of station.	200	150	150	100
3	Building Exterior	Closed-Type Floodlighting Projector, with normal beam spread of about 25°, equipped with 40° Spreadlight lens. Minimum Mounting Height above ground 25′.	1000	750	750	500
4	Sales Room	Totally-enclosing glass globe. Mounting Height—at ceiling Minimum diameter—from 14″ for 200-watt lamp to 18″ for 500-watt lamp.	500	300	300	200
5	Show Windows	Intensive type show window reflector. Spacing—18″ center to center.	200	150	150	100 or 150*
6	Rest Rooms	Totally-enclosing glass globe. Mounting Height—at ceiling.	100	100	100	100
7	Wash Racks	Porcelain enameled angle reflector. Mounting Height—7′ above floor.	300	200	200	150
8	Work Area	Standard RLM porcelain enameled steel reflector and white bowl, or inside-frosted MAZDA Lamp.	300	200	200	150

*If 150-watt lamps are used here the spacing may be increased from 18″ to 24″ center to center.

closed-type, if used at distances greater than 30 feet.

If the station has overhanging eaves, the sidewalls may be lighted by units concealed beneath the cornice. Prismatic glass, polished metal, or mirrored glass reflectors placed about 18 inches apart are effective for this purpose.

The use of cornice lighting provides an excellent opportunity to introduce striking effects. It is often possible, for example, to use colored light during the holiday seasons and thus help build community interest and goodwill.

Station Interior

The modern service station is a sales room and no longer merely a place where the operator waits for customers. The well-lighted sales room enjoys more customers than the poorly lighted ones; good lighting not only implies quality of product but also bespeaks reliability.

From the standpoint of the appearance of the sales room to the motorist in his car, the show window lighting is most important. It should be lighted brightly enough to attract attention and the lighting should be sufficiently uniform to avoid noticeable differences in brightness, except where a spotlight is desired to call attention to a particular feature. Also, the show window lighting equipment should be of the concentrating type and placed so that it is not annoying to anyone in the sales room (See Fig. 3).

Many manufacturers of accessories, which are sold through service stations, supply window display pieces which can be lighted. To take full advantage of these opportunities, convenience outlets should be provided at intervals along the base of the show window where such displays can be connected.

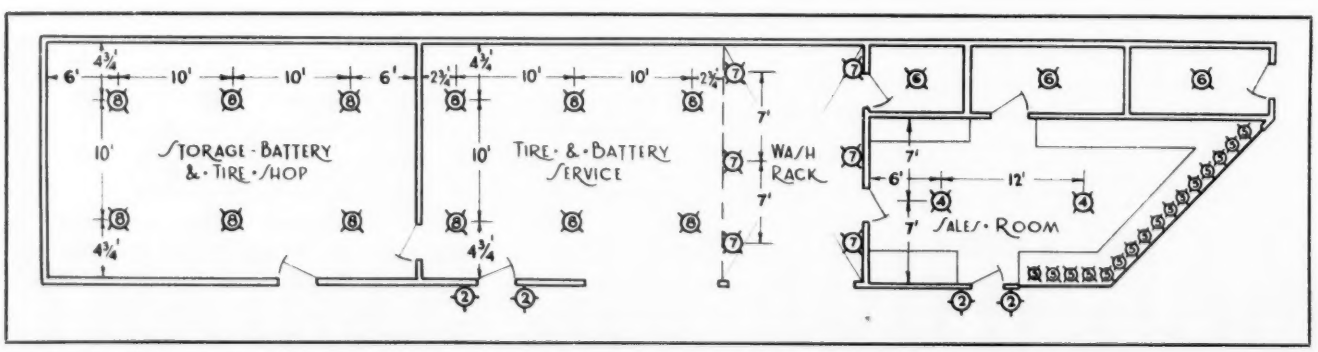
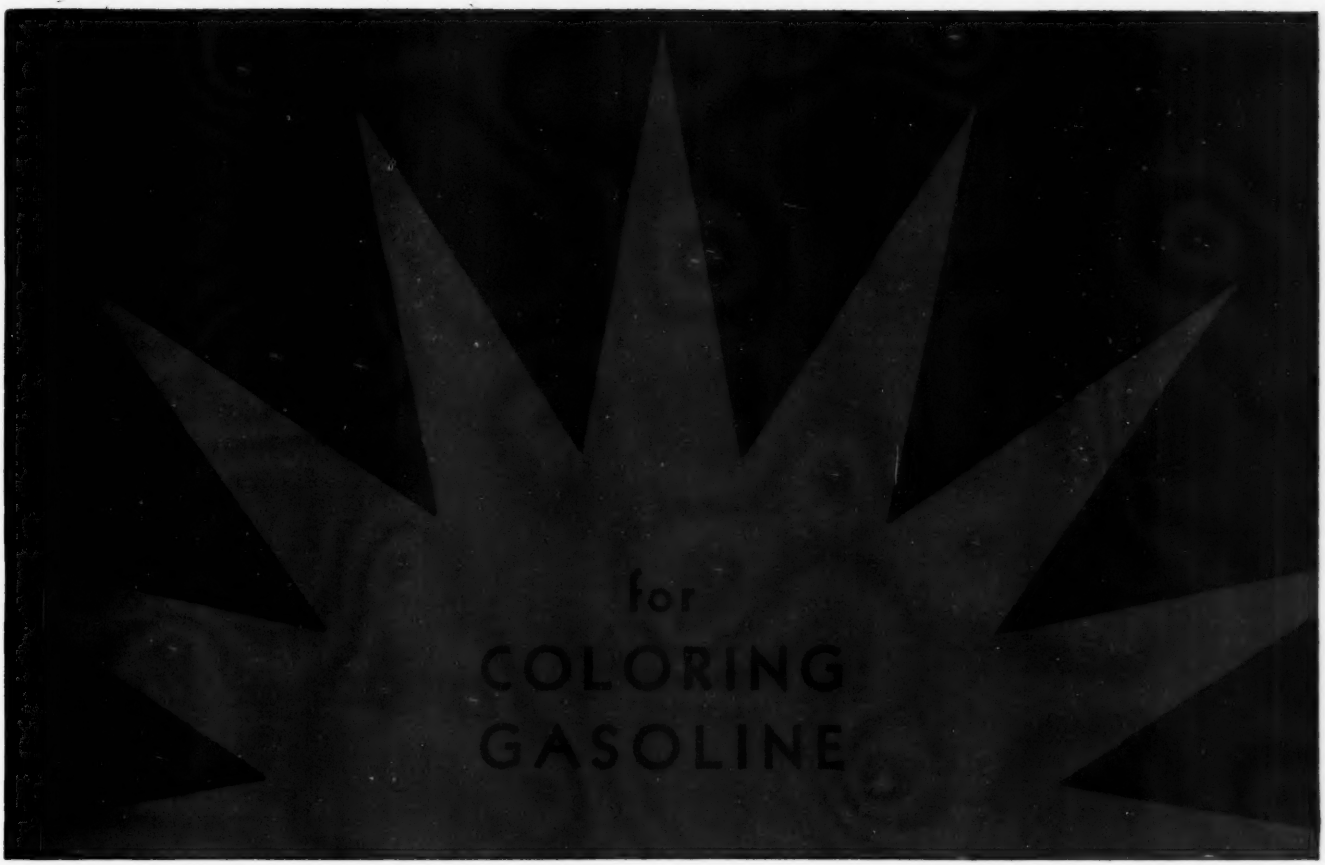


Fig. 3—How the inside of the station building and various departments may be lighted. Numbers are keys to types of lighting equipment listed in Table 1.



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You pay no royalties or premium prices for anthraquinone colors purchased from us, and our co-operation and laboratory facilities are at your service.

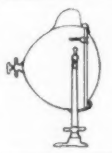
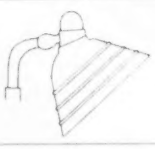
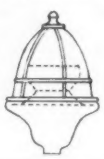
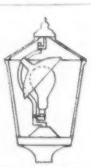
No one but the Patent Fuels & Color Corporation and the Patent Chemicals, Inc., is authorized to sell our Anthraquinone dyes.

PATENT FUELS & COLOR CORP.
Carew Tower, Cincinnati, Ohio
(Marketing Division)

PATENT CHEMICALS, INC.
57 Wilkinson Avenue, Jersey City, N. J.
(Manufacturing Division)

Table II — Rating Table for Yard Lighting Equipment

The units in the table are rated(A—Excellent B—Good C—Fair D—Unsatisfactory

TYPE OF EQUIPMENT		Efficiency in illuminating desired area for a given wattage.(1) Mounting Height (Good Practice)	From less than 30 ft. Bldg.	From less than 30 ft. Yard	From more than 30 ft. Bldg.	From more than 30 ft. Yard	General Appearance Of Unit By Day	General Appearance Of Unit At Night	Of lighted area	Maintenance of lighting efficiency	Ease of servicing (2)
Closed-Type Floodlight Proper cover glass and polished or mirrored surface reflector.		Not less than 25 feet	B	C	A	A	C+	B+	A	A	C
Open-Type Floodlight No cover glass. Diffuse reflecting surface.		Not less than 20 feet	B—	B	C—(3)	C(3)	C	B—	B	D	C+
Pendent-Type Street Lighting Unit Semi-diffusing glass globe equipped with refractor (4).		From 16 feet to 20 feet	B	A	C—	C	A	B	B	A	B+
Upright-Type Street Lighting Unit Semi-diffusing glass globe equipped with refractor (4).		From 14 feet to 18 feet	B+	B	C—	C	A	A—	B	B+	B
Ornamental Floodlighting Luminaire Semi - diffusing glass globe and polished, or mirrored, reflector (4).		Not less than 18 feet.	A	B	B+	B	A	B	A—	B	B to C

(1) It has been assumed that the equipment is so placed as to avoid glare. A low rating under this heading may usually be the result of lack of control of the light resulting in objectionable spill.

(2) This includes all of the servicing factors such as the ease with which lamps can be renewed, frequency of cleaning required, and the accessibility as affected by the mounting height.

(3) If a well-designed polished reflector is included ratings may be raised to B— and B respectively.

(4) Refers to opalescent, rippled, or stippled glass.

The overhead lighting in the sales room should be from totally enclosing glass globes of sufficient size (See Table I) in order to avoid glare. These equipments should be suspended at or near the ceiling.

For the wash rack, the tire, and battery service departments, etc., lighting equipment of a less expensive type and which are more appropriate for work areas may be used. Porcelain-enameled Glasssteel Diffusers or R L M Dome reflectors, spaced as shown in Figure III, will produce highly satisfactory results in these general work areas.

Lighting for lifts and wash racks has already been discussed in some detail in a previous article[2] and requires no further mention, except to point out that the recommended type of lift lighting (mounted on the lift) is particularly desirable if the lifts are out of doors, as indicated for this Southern station. This type of lighting not only lights the under side of the car (which yard lighting cannot be expected to do) but also lights the ground beneath the car.

LONDON — An increase of $3,750,000 in capitalization has been announced by directors of London & Thames Haven Oil Wharves. New capitalization will be $7,500,000. Reason for this expenditure is reorganization of the company's refinery at Thames Haven, the completion of plans in France, and other developments.

NEW YORK—L. E. Alfred, Louisiana Oil Refining Corp., Jackson, Miss., has been appointed a member of the southeastern region code committee, according to the American Petroleum Institute.

PHILADELPHIA — A. D. Quinn, sales manager, industrial division, L. H. Gilmer Co. here, manufacturer of Gilmer products, died of a heart attack Sept. 17 while in Chicago on a business trip. Mr. Quinn joined the company in 1919. Three years later he was put in charge of industrial sales.

[2] National Petroleum News, June 24, 1931. Page 81.

Merchandising and Jobbing Ideas Marketers Are Using

By E. L. Barringer

N. P. N. STAFF WRITER

"Two-Gallon Buyer" Brings Results

NATIONAL PETROLEUM NEWS created considerable interest in oil merchandising this year with its "two-gallon buyer" series, showing lack of salesmanship at our stations.

In the wake of these articles we received many compliments, and the full share of verbal brick bats. We enjoyed both.

There were two incidents arising from this series that leave a pleasant memory. We pass them on because they are constructive, because they show how oil men can apply an idea appearing in print. We will not mention names, of course, but these oil men will know.

The first incident happened at a dealer's station. Prior to the series he never tried to sell us a thing. He knew us, and our driving habits, so he just let us order.

Now he sells us. None of this "May I fill it up?" business. No sir, he asks how many gallons are in the tank. Then he fills the tank with the *best* grade of gasoline in the station. We admire him for his courage, especially since it is more difficult to apply salesmanship to a friend rather than a stranger. And we don't dare turn him down.

The second incident has two parts. Shortly after a story on the "two-gallon buyer" in this oil man's city we visited his office. Frankly, the visit was unpleasant. It was the first time we were in his office, and at that time we hoped it would be the last.

Several months passed, and we were in this oil man's city again. Against our personal desires we called on him. Now we are glad we called. The reception was cordial, and we enjoyed that 15 minutes in his office.

Why this changed attitude? This oil man took the article on his city at face value. He dug up some facts on his own accord, and best of all, he acted to correct the situation at his stations.

We admire that man for facing distasteful facts. He thought the N. P. N. analysis unfair to his stations, but he was man enough to take action. We publicly predict that no "two-gallon buyer" will find reasons to criticize this man's stations again.

* * *

Too Many Stations? No! We Need More

Our industry frequently is charged with having grossly overbuilt its market outlets. The indictment usually takes the form of declaring that about three out of every five service stations are unnecessary.

We contend this is wrong. Instead of too many stations, we have too few stations. One of the biggest marketing problems is to provide our customers with real service stations where they can buy our products.

Our difficulty is failing to see the forest on account of the trees. And in this case we look at that vast growth of scrubby gasoline outlets and are blinded to the fine view of the need for the forest of real stations.

After all, the viewpoint of our customers is most vital in merchandising. It is their viewpoint we need, not our own of the scrubby gasoline outlets.

We recommend to everyone selling oil, whether he be vice-president in charge of sales or a dealer with one station, the practice of spending at least one day a month driving around to his own and competitors' stations. Drop office cares, forget the title on your door, and just place yourself in the frame of mind of the customers pulling up at your pumps.

Watch for the little things while you drive around. As you pull up to the pump note how many station salesmen meet you with a smile, a crisp greeting, and inquire if you want a tank full of gasoline, and the best gasoline he has to sell.

You will have a long, silent wait at most stations if you do not take the lead in asking if you may please buy some gasoline.

Note also how often you hear brand names of motor oil. We have, just once in the last three years. You will find the main difference between oils is just one nickel. You will be told the station sells "25 and 30-cent oil." Isn't it pitiful to kick oil around like that after our industry spends millions of dollars each year on consumer advertising? We emphasize our brand names in magazines, newspapers, billboards, and station signs, yet at the critical point of buying oil at the station our customers find after all it is just a "quart of oil."

There are plenty of other things to notice. When you get through with your drive ask yourself how many of your stations you are proud of, how many are a credit to your company.

We heartily agree there are far too many places to buy gasoline. But in meeting this problem we should not be confused and overlook the fact that there are far too few high caliber service stations.

* * *

Jobber Smooths Over Church's Objection to Station

When a church congregation objects to the building of a service station across the street the oil man finds himself in an awk-

ward position. Undoubtedly the marketer thinks his investment will be worth while, or he would not have planned the station, yet he dislikes going ahead with the possibility of some ill will from church members.

The Freeport Petroleum Corp., Freeport, Ill., ran into this situation last year when a modern lubrication station was planned for a corner across from a church.

As soon as the church had indicated its disapproval the company seemed to drop the project. Quietly, however, the company went ahead with the plans. Then a few prominent church members were told about the beauty of the proposed station. Exterior walls would be of a washable tile, and the drives would be made of supercement for more thorough cleaning.

The station was built, and the washable tile was used on the two sides to the back. This cost about $400 more than ordinary brick, but the company believes the good will of the neighbors offsets that cost.

On Sundays station attendants are not allowed to park their cars within several blocks of the church to make room for the members. If a church-goer arrives late, has difficulty in finding parking space, the company overlooks leaving the car on its drive.

Last Christmas the company played its trump card. Without notice the company closed the station early on Christmas Eve, turning out all lights. Floodlights were directed from the station, towards the front of the church.

Someone telephoned the minister. He rounded up choir members to sing Christmas carols in front of the church, in the spotlight provided by the oil company.

* * *

Refiner Sells in Reception Room

National Refining Co. has dressed up its reception room in the main office at Cleveland so that it helps sell the company's products.

A large office space, opposite the information desk, is reserved for waiting visitors. There is a large map of the United States showing all the company's division offices, branch offices, and the refining and production departments.

Around the walls are photographs of steamships, railroad engines, and manufacturing plants using the company's En-Ar-Co lubricants. Other pictures show representative views of the company's service stations, bulk plants, laboratories and refining processes.

For the comfort of visitors there is a wash bowl, with clean towels, and a drinking fountain with ice water.

Here's How To Remove Oil Stains From Concrete Drives

CLEVELAND

HOW to remove oil and other stains from concrete surfaces is told in a recent bulletin of the Portland Cement Association. Information in that bulletin was obtained from the U. S. Bureau of Standards technologic paper No. 350, compiled as a result of research work on the part of the bureau and the National Association of Marble Dealers.

While old oil stains are difficult to remove, the bulletin points out, results may be obtained by treating the stained surfaces several times with the solutions prescribed. Stronger solutions for old stains are required, although none of those described are corrosive.

Here are several methods for removing various kinds of stains from concrete surfaces:

Lubricating Oil Stains

Mop off immediately with a cloth, cover with fuller's earth or other dry powdered material, such as hydrated lime or whiting. In some cases, a layer of dry portland cement will serve the purpose.

When the oil has remained on the surface for a long time and has thoroughly oxidized, any of the three following methods may be found successful:

Method 1. Place over the stain a piece of white Canton flannel, saturated in a mixture of equal parts of acetone and amyl acetate. The flannel is to be a little larger than the stain. Cover with a piece of pane glass, or a small slab of concrete, the latter being preferable as it draws in some of the oil, while the glass will drive it in.

When the cloth becomes dry, saturate again and cover the stain as at first. If the solvent tends to spread the stain, a larger cloth should be used.

Method 2. Mix a solvent, such as benzol or gasoline with a dry powder (hydrated lime, marble dust, or whiting), to form a paste. Plaster over the stain. This method is said to be satisfactory for oil stains occurring in construction, but it will act slowly on old oil stains.

Method 3. Place a layer of asbestos fiber about ¼-inch thick over the stained portion, saturate it with amyl acetate, and cover with a scrap slab of concrete. On top of the auxiliary slab, place a hot iron of about the temperature used for pressing fabrics. Apply more of the amyl acetate as the asbestos becomes dry and reheat the iron as often as necessary. A few layers of Canton flannel may be used instead of asbestos fiber if care is taken not to scorch the cloth. Stains from the scorched cloth may be removed by the same method recommended for fire stains.

Iron Stains:

Method 1. For stains not too intense, dissolve one part sodium citrate in six parts of water and mix thoroughly with an equal volume of glycerine. Mix a part of this liquid with whiting to form a paste stiff enough to adhere in a thick coating to the surface. Apply to stained area with a putty knife or trowel. This will dry in a few days and should then be replaced with a new layer or softened by the addition of more of the liquid.

For quicker results, which will, however, injure polished surfaces slightly, use ammonium citrate instead of sodium citrate.

Method 2. For deep and intense stains, use sodium hydrosulphite ($Na_2S_2O_4$). Before ap-

plying the hydrosulphite, soak stained surface for a few minutes with solution of sodium citrate made by dissolving 1 part of the citrate crystals in 6 parts of water.

To apply citrate solution, dip a white cloth or piece of cotton batting into the solution and paste it over the stain for 10 or 15 minutes.

If the stain is on a horizontal face, sprinkle a thin layer of the hydrosulphite crystals over it, moisten with water, and cover with a stiff paste of whiting and water. If the stain is on a vertical face, place a layer of the whiting paste on a plasterer's trowel, sprinkle on a layer of the hydrosulphite, moisten slightly and apply it to the stain. Remove after one hour. If stain is not all removed, repeat the treatment.

When the stain disappears, rinse the surface thoroughly with clear water and make another application of the citrate solution.

Copper or bronze stains (usually green in color)

Method 1. Mix dry one part of ammonium chloride (sal ammoniac) and four parts of powdered talc. Add ammonia water and stir into a paste. Place this over the stain and leave until dry. A stain of this kind that has been collecting for several years may require several repetitions to remove it. Sometimes aluminum chloride is used instead of sal ammoniac.

Method 2. Dissolve eight ounces of potassium cyanide in one gallon of water. Saturate a thick white cloth in the solution and place it over the stain. When the cloth is dry, soak it again in the cyanide solution and repeat the operation until the stain disappears. Sometimes it may be advantageous to combine this and the method above; that is, remove the greater part of the stain with the poultice and finish with the cyanide solution. This solution is very poisonous if taken into the system.

Fire Stains

Scour with powdered pumice or a grit scrubbing powder to remove the surface deposit. Dissolve two pounds of trisodium phosphate crystals in one gallon hot water. Mix the contents of a 12-ounce can of chlorinated lime to a paste in a shallow enameled pan by adding water slowly and washing the lumps. Pour this and the trisodium phosphate solution into a stoneware jar and add water until approximately two gallons are obtained. Stir well, cover the jar, and allow the lime to settle.

Fold a white Canton flannel cloth to form three or four layers and saturate it in the liquid. Paste this over the stain and cover it with a piece of pane glass or scrap slab of concrete, making sure the cloth is pressed firmly against the surface. Resaturate the cloth as often as necessary. Several treatments will be necessary for deep pitch stains.

Rotten Wood Stains

These dark colored stains may be treated the same as fire stains. They may be removed more quickly if the surface is first scrubbed thoroughly with glycerine diluted with four times its volume of water.

Experiments with Small Aluminum Tank

CLEVELAND

AN INTERESTING experiment is being conducted by the Canfield Oil Co. in the use of aluminum in a small tank wagon.

For some years the company has been using 600-gallon steel tanks on 1½-ton trucks equipped with an auxiliary axle. The accompanying photograph shows a new Canfield unit equipped with an 825-gallon aluminum Davisbilt tank with four compartments which gives approximately the same gross load as a similar unit with a 600-gallon steel tank.

The new tank body complete weighs approximately 1500 pounds. A tank of the same capacity made of steel would weigh about 2675 pounds.

The increase of approximately 35 per cent in net pay load possible by using the aluminum tank may prove to be a greater saving than is achieved generally in the much larger units which generally are being built of aluminum, in the opinion of M. C. Dipple, Canfield purchasing agent. He believes this type unit may be the best answer to the problem of economical deliveries to dealer accounts.

This is one of the first small aluminum tanks to be built, according to the Davis Welding & Manufacturing Co. of Cincinnati, tank builders. Most of the aluminum tanks are of large size where the saving in tank weight is not as great a percentage of the total as in the smaller units.

As a tank is increased in capacity, the tank weight in pounds per gallon goes down. A steel tank of 600 to 700 gallons capacity for example, may weigh about 3¼ pounds per gallon of load while a large truck tank for bulk hauling may weigh as little as 2¼ pounds per gallon. It will thus be apparent that the saving in gross weight is greater in the small tank than in the large one.

Another factor which works in favor of the small aluminum tank is the fact that the small truck is more critical of overloads than the large truck. A difference of a ton in the load of a 10-ton unit would be negligible while in a small unit it would be highly important.

Aerial view of Pensacola harbor, with the Sherrill Terminal Co. and wharf at the extreme right

Marketing Costs Reduced by Using Common Marine Terminal

By E. L. Barringer
N. P. N. STAFF WRITER

PENSACOLA, Fla.

THREE major oil companies marketing in the southeast are reducing distribution costs on tanker shipments through Pensacola, Fla., by using a common terminal. Sherrill Terminal Co. owns and operates the plant.

In place of each company building and operating its own marine terminal in Pensacola they have contracted with the Sherrill Terminal Co. for terminal service. These companies are the Pure Oil Co. and Shell Petroleum Corp., on light oils, and the Mexican Petroleum Corp. for asphaltic road oil.

Thus one terminal is doing the work of three, saving the initial investment and costs of operation. No mixture of products is possible as separate lines from the wharf, storage tanks, pumps, and lines on the tank car loading rack are provided. Goods for each company is kept separate through the plant.

All oil companies have access to the terminal at any time, and are represented whenever their products are being moved.

When a tanker of the Shell fleet, for instance, radioes that it will make port at a certain time the local representative of the Shell corporation is notified. He transacts business with his company's tanker and is present while the cargo is being unloaded.

D. A. Vann
Vice-president, Sherrill Terminal Co., Pensacola, Fla.

When tank cars are being loaded with Shell gasoline the local Shell representative is present also. And he has access to the plant at any time to check his storage stock.

The Sherrill terminal was built on made land, reclaimed from Pensacola bay. For Shell the terminal warehouses gasoline, for Pure Oil, gasoline, kerosine, and fuel oil; and for Mexican Petroleum, asphaltic road oil.

Products are moved from the terminal on long hauls inland by tank truck and by tank car. The trucks are used by the Sherrill Oil Co., distributing gasoline in western Florida and southern Alabama.

The principal divisions of the terminal are the wharf, storage tanks, power and pump houses,

ADVERTISING TAGS REMOVED

PURE PENNSYLVANIA

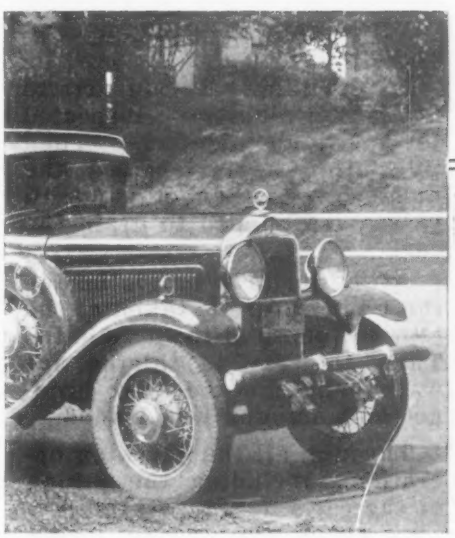
Natural

Winter Motor Oil

Guaranteed 100% PURE PENNSYLVANIA OIL

Permit No. 29

This 100% Pure Pennsylvania *Natural Winter Motor Oil* offers you all the well-known advantages for which Pure Pennsylvania Motor Oil is famous. It has a lower pour test . . . better pumpability . . . yet retains all the heat resisting quality of regular Pennsylvania Motor Oil. It opens new possibilities . . . new sales advantages . . . greater opportunity for profit. Right now is the time to take action. Write for prices on this new winter motor oil. Check the list of other Canfield Winter Lubricants and let us send you full information that will tell you how to round out your business with the profits these winter lubricants offer. Time is short. Fill in the coupon. Mail it TODAY.



THE CANFIELD OIL COMPANY
GENERAL OFFICES; CLEVELAND, OHIO
Refineries: Cleveland, Ohio; Corsopolis, Pa. - Compounding and Grease Plant; Cleveland, Ohio - Greater New York Plant; 285 Tonnelle Avenue, Jersey City

THE CANFIELD OIL COMPANY, *Cleveland, Ohio*

Please tell us about your jobbing proposition on these winter products; 100% Pure Pennsylvania *Natural* Winter Motor Oil □; Paraffin Base Mid-Continent Cold Test Oils □; Pale and Red Zero Oils □; Sub-Zero Oils □; Winter Transmission and Gear Lubricants □; Winter Pressure Lubricants □.

□ I buy in Tanks (Straight or Compartment) _____

□ Drums, Carload Lots _____ □ Drums, Less Carload _____

LUBRICANTS

Name _____

Address _____ *City and State* _____

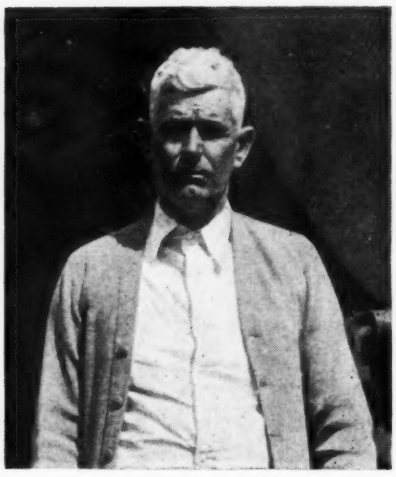
and the tank car loading racks.

Tankers unload goods with their own power, and move it to the storage tanks. The unloading lines from the wharf to storage range in size from 12 to 4 inches.

Eight tanks comprise the storage yard; these range in capacity from 64,000 to 2500 barrels. The terminal has ample space for erecting additional tanks as needed.

The storage tanks are built on a ring of reinforced concrete two feet square. The ring was filled with earth, well wetted and tamped, and the steel erected on this foundation. All tanks have water draw offs below the suction pipe. Three tanks have insulated roofs, and all have safety hatches.

Two 40-horsepower boilers provide steam for the pumps on the tank car loading line. The boilers are fired with fuel oil.



G. W. Erwin

Superintendent of the Sherrill Terminal Co., Pensacola, Fla. Mr. Erwin started in the oil industry 1902

Two 100-barrel tanks have been erected by the power house, one for fuel oil and the other for water storage.

In the pump house, for moving goods from storage to the tank car loading rack, is a separate pump for each commodity handled; and two pumps for gasoline, one for Pure and the other for Shell.

The tank car loading rack has 18 spots, nine on each side. Each spot has a plug valve, and a 17-foot length of hose attached permanently to the nipple below the valve. At the free end of the hose is a three-inch union to connect the hose with the down spout.

The down spout is of galvanized iron, riveted and soldered. At the top it is three-inches in diameter. At the bottom it is four inches across, but spouts purchased in the future will be five inches. The flare at the bottom is to dissipate pressure and to lessen evaporation losses. With the spout of galvanized iron it is easy to handle, and inexpensive. The union on the hose permits quick coupling on the down spout. Losses during loading of tank cars are greatly reduced by this method.

Capacity of the loading rack is estimated at 50 tank cars daily, and 46 or 47-car days are not infrequent.

For economical operation of the rack shipping orders are bunched. The favorite grouping is nine tank cars. When the nine cars are connected to the rack the pumps will be started. As each car fills it is taken off the line, until the group is completed.

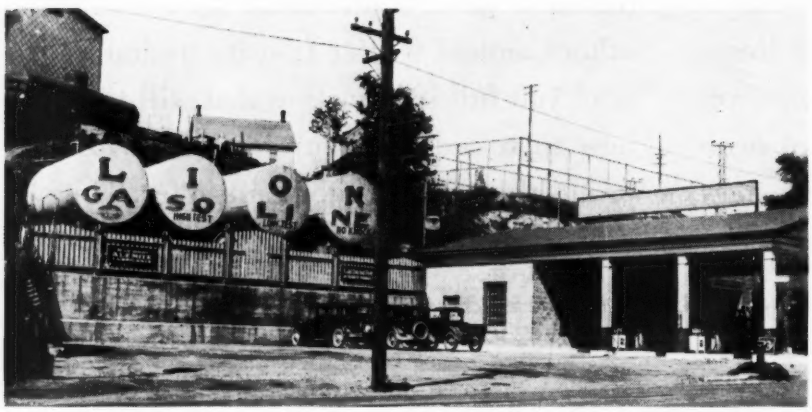
Empty tank cars, on arrival at the terminal, are inspected for mechanical defects. Then the outlet cap is removed, the dome cover taken off, and all valves are tripped to drain the car.

After the tank car is loaded the temperature is taken at the top, bottom, and in the middle. Then the car is thiefed for water, and checked as to product and amount was loaded.

Through all the checking operations, including the taking of the car's number, three persons check the car to insure that it was loaded correctly.

Sherrill Terminal Co. is prepared to offer similar service to any other oil company desiring terminal service at Pensacola.

Trackage Station Near Quebec



FOR $35,000 W. Bourque built this neat and compact trackage station on the main highway leading into Sherbrooke, Que., 32 miles from the United States border. It is on an elevated railroad siding, permitting the unloading and dispensing of gasoline by gravity.

Four horizontally placed storage tanks, with total capacity of 48,000 U. S. gallons, offer themselves as advertising space for Lion gasoline. Three of these tanks hold gasoline and one motor oil.

There are two grease pits and two wash racks outside, one car washer and hot water boiler.

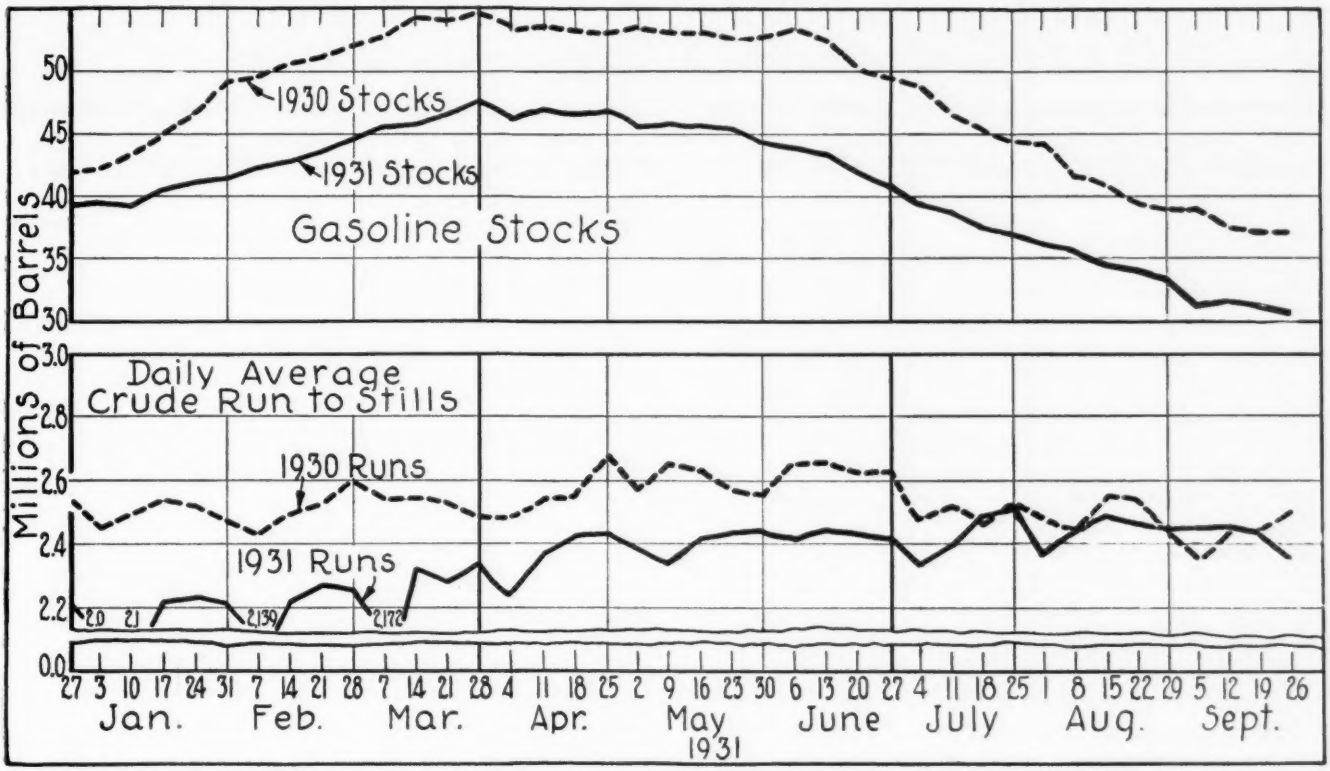
The station has a department for windshield repairs, equipped with a glass grinder.

The station building, 110 by 40 feet, occupies a lot 250 by 200 feet. It is of cement block construction, with interior in brick covered with asbestos sheets. There are two rest rooms.

The canopy is 40 by 40 feet. Under it are four gasoline pumps and display racks for bottled motor oil.

ADVERTISING PAGES REMOVED

U. S. Crude Runs and Gasoline Stocks as Reported Weekly by A. P. I.



Refinery Crude Runs Reduced 76,100 Barrels Daily

By Telegraph

NEW YORK, Sept. 29

CRUDE runs at refineries reporting weekly to the American Petroleum Institute were reduced 76,100 barrels daily average in the week ended Sept. 26, to 2,355,600 barrels per day. Reporting plants utilized 64.4 per cent of their rated still capacity during the week. This was the lowest rate of operations since the sharp dip in the week ended July 4. Runs have not been so low for any extended period since early spring.

Mid-Continent and California refiners reported the largest cuts in crude runs. California refiners reduced their throughput 39,100 barrels daily average and Oklahoma-Kansas refiners cut their runs 32,900 barrels as gasoline demand kept dropping.

Refinery stocks of gasoline were reduced 350,000 barrels during the week to 30,773,000 barrels. Of this amount East Coast refiners drew 233,000 barrels from storage and Texas refiners 324,000 barrels. All other districts except Indiana-Illinois reported accumulations.

Stocks of gasoline at bulk terminals and in transit from refineries to terminals were increased 586,000 barrels to 12,767,000 barrels during the week. Total gasoline stocks outside the distributing system thus showed a net increase of 236,000 barrels.

Current Refinery Operations

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks (Thousands of Barrels)				Cracked % of Total Capacity Reporting	Gasoline Production Daily Av. Production (Barrels) Week Ended	
		Sept. 26	Sept 19	Sept. 26	Sept. 19	Gasoline Sept. 26	Gasoline Sept. 19	Gas & Fuel Oil Sept. 26	Gas & Fuel Oil Sept. 19	Sept. 26	Sept. 26	Sept. 19
East Coast	100.0	499,000	497,300	78.7	78.5	3,702	3,935	10,821	10,799	90.4	93,900	96,400
Appalachian	91.8	104,300	112,300	75.9	81.7	1,260	1,209	1,604	1,585	96.1	26,000	25,000
Ind., Ill., Ky.	98.9	324,200	336,500	75.1	78.0	3,786	3,828	4,975	4,924	95.5	78,000	93,900
Okla., Kans., Mo.	89.6	249,100	282,000	57.2	64.8	2,793	2,715	5,127	5,236	92.3	61,700	62,900
Texas	91.3	522,100	512,600	68.2	67.0	5,342	5,666	11,514	11,482	96.8	135,300	117,700
La., Ark.	98.9	165,100	166,300	71.6	72.1	833	749	3,458	3,304	100.0	32,100	32,300
Rocky Mountain	89.3	55,900	49,700	39.3	34.9	1,213	1,188	808	808	98.5	13,300	12,600
California	96.5	435,900	475,000	49.5	54.0	11,844	11,833	97,513	96,995	100.0	38,800	43,400
Total	95.0	2,355,600	2,431,700	64.4	66.5	30,773	31,123	135,820	135,133	95.6	479,100	484,200
Texas (Gulf Coast)	99.8	393,900	380,000	74.1	71.5	4,133	4,493	8,155	8,137	98.6	109,900	93,100
La. (Gulf Coast)	100.0	112,300	112,000	76.1	75.9	586	530	2,495	2,299	100.0	23,300	23,600

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations, Week Ended Sept. 25 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended Sept. 25
Plants Reporting	10	23	23	10	10	76
Da. Av. Cap. (bbls.)	94,000	162,500	107,400	71,500	60,700	496,100
Da. Cracking Capacity	53,200	64,600	23,100	26,250	31,700	198,850
Da. Av. Crude Runs	59,399 — 6.6	98,729 — 18.4	63,532 — 3.7	17,672 — 20.8	46,758 + 1.2	286,090 — 10.4
Da. Av. Other Oil	7,612 + 26.4	5,471 + 72.5	2,452 — 12.6	111 — 81.2	19,164 — 9.8	34,810 + 2.9
GASOLINE—Gallons						
Stocks, Sept. 18	19,836,000	39,591,000	19,991,000	15,938,000	7,777,000	103,133,000
Prod. 9-18 to 9-25	12,298,000 + 3.3	17,821,000 — 14.7	10,701,000 + 1.5	1,792,000 — 22.7	6,345,000 — 5.0	48,957,000 — 6.5
Ship. 9-18 to 9-25	10,163,000 — 27.9	19,509,000 + 15.2	8,239,000 — 12.7	2,255,000 + 3.5	5,670,000 — 12.7	45,836,000 — 6.8
Stocks, Sept. 25	21,971,000 + 10.8	37,903,000 — 4.3	22,453,000 + 12.3	15,475,000 — 2.9	8,452,000 + 8.7	106,254,000 + 3.0
Ratio Sales to Prod.	82.6%	109.5%	77.0%	125.8%	89.4%	93.6%
KEROSINE—Gallons						
Stocks, Sept. 18	9,375,000	12,368,000	3,109,000	31,000	695,000	25,578,000
Prod. 9-18 to 9-25	1,892,000 — 5.3	1,976,000 — 19.2	853,000 + 4.4	....	437,000 + 9.5	5,158,000 — 9.1
Ship. 9-18 to 9-25	968,000 — 61.4	1,773,000 — 52.2	649,000 + 3.3	....	414,000 — 39.1	3,804,000 — 49.4
Stocks, Sept. 25	10,299,000 + 9.9	12,571,000 + 1.6	3,313,000 + 6.6	31,000	718,000 + 3.3	26,932,000 + 5.3
Ratio Sales to Prod.	51.2%	89.7%	76.1%	.....	94.7%	73.7%
STOVE DISTILLATE—Gallons						
Stocks, Sept. 18	1,936,000	14,562,000	79,000	83,000	43,000	16,703,000
Prod. 9-18 to 9-25	420,000 — 14.8	827,000 — 21.8	47,000 +213.3	21,000 — 22.2	39,000 — 58.1	1,354,000 — 19.7
Ship. 9-18 to 9-25	478,000 — 21.8	502,000 — 11.8	66,000 + 73.7	7,000 — 66.7	53,000 — 23.2	1,106,000 — 15.4
Stocks, Sept. 25	1,878,000 — 3.0	14,887,000 + 2.2	60,000 — 24.1	97,000 + 16.9	29,000 — 32.6	16,951,000 + 1.5
Ratio Sales to Prod.	113.8%	60.7%	140.4%	33.3%	135.9%	81.7%
GAS OIL—Gallons						
Stocks, Sept. 18	9,367,000	45,290,000	7,490,000	2,554,000	10,135,000	74,836,000
Prod. 9-18 to 9-25	1,166,000 + 71.0	979,000 +118.7	592,000 — 20.6	364,000 — 31.2	2,413,000 — 4.5	5,514,000 + 12.3
Ship. 9-18 to 9-25	223,000 — 58.2	788,000 — 6.7	164,000 — 48.9	462,000 — 81.6	2,943,000 + 15.1	4,580,000 — 32.3
Stocks, Sept. 25	10,310,000 + 10.1	45,481,000 + 0.4	7,918,000 + 5.7	2,456,000 — 3.8	9,605,000 — 5.2	75,770,000 + 1.2
Ratio Sales to Prod.	19.1%	80.5%	27.7%	126.9%	122.0%	83.1%
FUEL OIL—Gallons						
Stocks, Sept. 18	22,174,000	75,377,000	84,600,000	28,340,000	22,467,000	232,958,000
Prod. 9-18 to 9-25	4,300,000 — 16.5	5,813,000 — 30.2	5,639,000 — 5.2	1,587,000 — 31.7	5,136,000 — 5.6	22,475,000 —17.4
Ship. 9-18 to 9-25	6,701,000 + 16.5	6,786,000 — 7.2	5,076,000 + 2.5	2,717,000 — 47.0	5,904,000 + 6.7	27,184,000 — 5.2
Stocks, Sept. 25	19,773,000 — 10.8	74,404,000 — 1.3	85,163,000 + 0.7	27,210,000 — 4.0	21,699,000 — 3.4	228,249,000 — 2.0
Ratio Sales to Prod.	155.8%	116.7%	90.0%	171.2%	115.0%	121.0%

Gasoline Produced by Various Methods, Week Ended Sept. 25

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	5,833,000	47.4	11,030,000	61.9	6,401,000	59.8	1,681,000	93.8	3,320,000	52.3	28,265,000	57.7
Cracked	5,574,000	45.3	5,399,000	30.3	3,139,000	29.3	.....	....	2,472,000	39.0	16,584,000	33.9
Natural	891,000	7.3	1,392,000	7.8	1,161,000	10.9	111,000	6.2	553,000	8.7	4,108,000	8.4
Total	12,298,000		17,821,000		10,701,000		1,792,000		6,345,000		48,957,000	

+ or — columns are % change from previous week.

Mid-Continent Refiners Cut Crude Runs 33,000 Barrels

Staff Special-By Telegraph
TULSA, Sept. 28

BECAUSE of continued light demand for gasoline Mid-Continent refiners again reduced their runs of crude to stills in the week ended Sept. 25 according to reports gathered by this publication. Crude runs were reduced 33,000 barrels daily average during the week.

In the week ended Sept. 18 the same group of refiners cut their runs 24,000 barrels daily average. Runs during the past week were thus 57,000 barrels or about 17 per cent below those in the week ended Sept. 11.

The lower crude runs enabled refiners to reduce their gasoline output 3,300,000 gallons during the week. In the previous week output was 2,000,000 gallons below that produced in the week ended Sept. 11, making the total cut in two weeks 5,300,000 gallons.

In Oklahoma and West Texas shipments were slightly greater during the past week. But all other groups reported substantial losses so that as

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Sept. 25. Change in stocks figured from Aug. 28.

GASOLINE

	Gallons
Production	209,120,000
Shipments	194,950,000
Net change in stocks	+14,170,000
Ratio sales to production	93.2%

KEROSINE

	Gallons
Production	22,724,000
Shipments	22,588,000
Net change in stocks	+136,000
Ratio sales to production	99.4%

STOVE DISTILLATE

	Gallons
Production	6,236,000
Shipments	4,915,000
Net change in stocks	+1,321,000
Ratio sales to production	78.8%

GAS OIL

	Gallons
Production	23,332,000
Shipments	27,519,000
Net change in stocks	—4,187,000
Ratio sales to production	117.9%

FUEL OIL

	Gallons
Production	106,219,000
Shipments	106,849,000
Net change in stocks	—630,000
Ratio sales to production	100.6%

a whole refiners in the district shipped 4,300,000 gallons less gasoline. Stocks consequently increased 3,100,000 gallons.

The reduction in output resulted in a reduction in fuel oil stocks. Other burning oil inventories increased.

Continental Oil Starts «Ad» Campaign

DENVER—Continental Oil Co. indicated recently that it is confident that the business depression is at or near the end. It launched a $250,000 advertising campaign for its Conoco germ processed motor oil.

The preliminary stage of the campaign consists of a $10,000 prize contest with $5000 first prize, $2000 second, $1000 third, two of $500 each, four of $100 each, four of $50 each, and 16 of $25 each.

The prizes will be for the best answers explaining the "Mystery of the Hidden Quart." The "Hidden Quart," the company explains in its advertising, is the quart the crankcase gauge shows is missing after a car has been driven 200 to 350 miles with its first fill of germ processed oil. On second, and later fillings, no oil will have disappeared at that distance range and scarcely none at 500 to 1000 miles, the company asserts.

The oil does not leak out, burn up, wear out, or evaporate, the company asserts in the ads. What becomes of it, is the question.

The campaign opened Sept. 15 with small teaser ads scattered through the newspapers used. The next day a second series of small teaser ads were used. These were followed with advertisements telling about the contest.

The contest will close Sept. 28 but the campaign in behalf of the oil will be continued through the rest of the year. Daily newspapers and farm journals will total circulation of 9,300,000 are being used. The newspaper ads are 6 columns by 18 inches.

Judges in the prize contest are: Dr. W. B. Bizzell, University of Oklahoma; John A. Hunter, professor of mechanical engineering, University of Colorado; and Frank L. Martin, associate dean, school of journalism, University of Missouri.

Julian Indicted

TULSA, Sept. 26. — Indictments have been returned by a federal grand jury against C. C. Julian, oil promoter, and 36 of his associates. The charges of using the mails to defraud were laid before the panel in Oklahoma City. Julian was one of the more flamboyant promoters in the Oklahoma City field, coming there from California after his gigantic oil bubble had burst in Los Angeles.

there is DANGER in towels used more than once

When you order supplies for your plant and service station washrooms, buy for safety as well as economy. Towels used more than once are dangerous because they carry the germs of disease from the hands of the sick to the hands of the healthy. And illness among your workers means lost time, lowered morale, and decreased efficiency. Besides, the danger of contagion will affect the patronage of your stations.

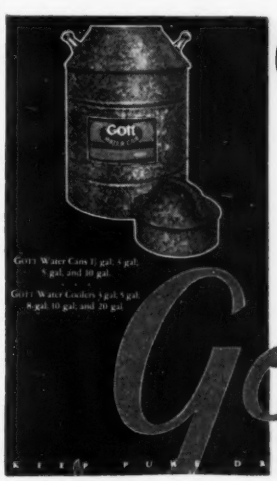
Insist upon A. P. W. Onliwon Paper Towels for your plant and service station washrooms. Safe because they can be used but once. Safe because they are protected by Onliwon Cabinets from dust, dirt and handling. Safe because they are made of only new, clean stock sterilized many times in the process of manufacture. Economical because they are double folded—giving them double strength and double absorbency. One towel is enough to completely dry the hands. Also make sure to specify Onliwon Interfolded Toilet Tissue for your washrooms. Roll toilet tissues may or may not be in a sanitary condition when bought, but they are exposed to dust, dirt and handling as soon as they are placed on the wall. Onliwon Toilet Tissue is safe because it is protected from all contamination by Onliwon Cabinets. Economical because the cabinets dispense only two sheets of tissue at a time, thus avoiding waste. Neat because the Onliwon system does away with untidy, littered floors. Protect your workers with A. P. W. Onliwon Towels and Toilet Tissue —the original, sanitary washroom service.

For full information, write to the A. P. W. Paper Co., 1299 Broadway, Albany, N. Y.

A.P.W.

TRADE MARK REGISTERED IN U.S. PATENT OFFICE

Pioneers
for Cleanliness since 1877



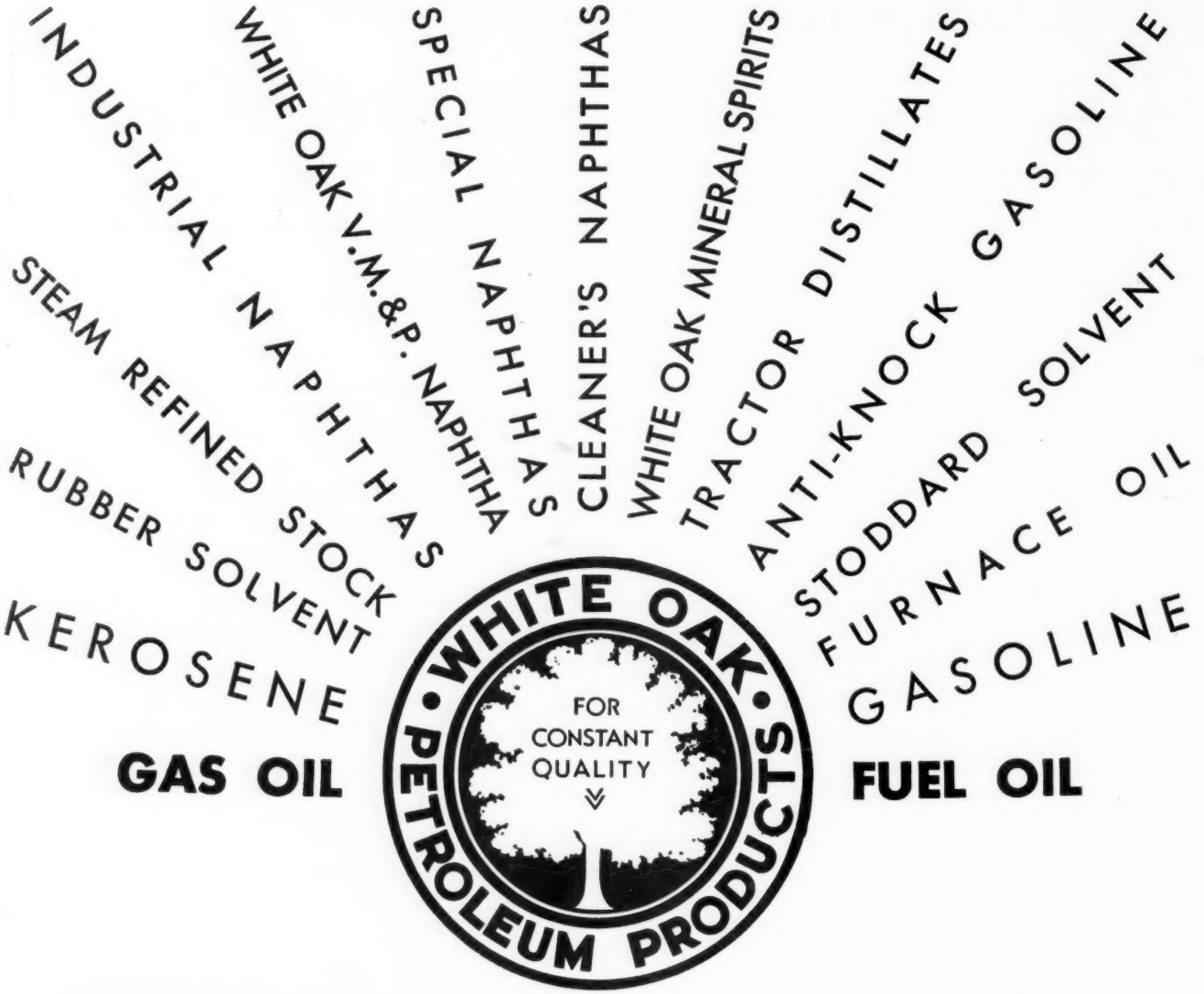
Gott Water Cans & Coolers

The GOTT Water Can is the safe, handy way to keep a clean supply of pure water always handy wherever you may be... It's health insurance ...*your supply store has them.*

Gotkool

H. P. GOTT MFG. CO. • Winfield, Kansas

KEEP PURE DRINKING WATER ALWAYS HANDY



REGARDLESS of your requirements, White Oak has a product that will fit your needs to a "T." Note the outstanding qualities of eight of the above products. More complete details will be given on request.

WHITE OAK ANTI-KNOCK GASOLINE, 60 to 65 octane number—Its anti-knock, quick pick-up and power qualities make it a most desirable premium motor fuel.

WHITE OAK STRAIGHT RUN GASOLINE, doctor sweet and non-corrosive, is a brilliant water-white of exceptional stability.

WHITE OAK KEROSENE, water-white, has a gravity of 41/42 and/or 42/44, either high or low flash point.

WHITE OAK STEAM REFINED STOCKS are completely steam refined and our Number 1 is acid-treated, assuring maximum lubricating value.

WHITE OAK INDUSTRIAL NAPHTHAS are refined by hand control from selected, uncontaminated sweet crude oil and are made to exact specifications.

WHITE OAK V. M. & P. NAPHTHA cannot be excelled as a conveyor.

WHITE OAK MINERAL SPIRITS carry a guarantee of quality and offer paint manufacturers an excellent thinner.

WHITE OAK TRACTOR DISTILLATE is refined from sweet crude oil, is non-corrosive and sweet to the doctor test.

Check your needs to White Oak—beginning today. It takes only a 2-cent stamp and a note to bring complete details on any or all of White Oak Quality Products.

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INDEPENDENT REFINERS and MARKETERS • HUNT BUILDING, TULSA, OKLAHOMA

• *Branch Offices:* 208 South La Salle Street, Chicago, Illinois; Builders Exchange, Minneapolis, Minnesota; 7 Water Street, New York City, New York. • *Refineries:* Allen and Oklahoma City, Oklahoma. • *Export Terminal:* New Orleans, Louisiana.

Refinery - Tank Wagon Markets

Gasoline Prices Recede in Most Areas As Jobbing Demand Remains Slow

CLEVELAND, Sept. 28

TRADING was in relatively small volume in refinery markets last week. Gasoline prices continued to lose ground in most markets. There was a slight increase in burning oil activity as colder weather spread over some areas. Crude and retail gasoline markets were featureless at least from the standpoint of developments directly affecting refinery prices.

The downward trend of gasoline prices in the Mid-Continent was brought to a halt late in the week when several large refiners entered the market as buyers. With crude prices remaining at levels high compared with current gasoline prices, refiners were finding it more profitable to purchase some of the requirements of their own outlets in the open market, at the same time curtailing runs at their own plants.

Considerable distress gasoline was said to have been taken off the market in the Mid-Continent. The exact volume of refiners' purchases was not known generally. It was sufficient, however, to cause the market for U. S. Motor gasoline to advance 0.125 cent to a minimum of 3 cents, on the basis of f.o.b. Group 3, in all Mid-Continent markets.

Outside of the Mid-Continent, refinery prices for gasoline continued to pursue a downward trend throughout the week. Prices were 0.25 cent lower in Pennsylvania, 0.125 cent lower along the eastern seaboard, 0.25 to 0.5 cent on the Pacific coast and 0.375 cent in Chicago.

Colder weather brought a better demand for home heating oils in most markets. While prices failed to react to the better demand, they were steady for the most part and traders generally expected prices to advance with the first real cold snap.

Cargo markets were quiet. Reports from abroad were to the effect that foreign refiners had lowered their gasoline prices still further following the reductions at the U. S. Gulf the previous week and European buyers for the most part were obtaining their requirements on the Continent. One cargo of 64-66, 375 end point gasoline, was reported sold by an American refiner at 4.25 cents f.o.b. the Gulf.

California-Atlantic seaboard trading was quiet. One large refinery in California reduced its prices for intercoastal shipments 0.5 cent a gallon.

Gasoline Demand Lags in Chicago Market

Staff Special

CHICAGO, Sept. 26

JOBBING demand for gasoline continued to lag in the Chicago market the past week. Prices lost some ground in early trading. Improvement in sentiment among traders was noted late in the week, however, and market prices showed signs of reversing their trend.

The week was an uneventful one from the standpoint of actual developments which affected the market one way or the other. Reports began filtering in to Chicago late in the week that numerous refiners in the Mid-Continent were being shut down due to the low level of gasoline prices as compared with crude prices.

There were also reports some of the larger Mid-Continent refiners were finding it more profitable to buy some of the cheap gasoline which was being offered and consequently were curtailing crude runs at their own plants and obtaining some of the requirements of their retail outlets from outside sources.

The constructive news reached Chicago too late in the week for results of it to be reflected in the Chicago market. Consensus of the trade, however, was that prices in Chicago doubtless would rally early next week.

Trading the past week was confined strictly to transactions for immediate shipment. Sellers generally reported they were unwilling to quote over a period,—the refiners because they firmly believed that prices would not stay long at current levels, and carlot marketers because they were unable to make "buys" for other than prompt shipment.

The market opened Monday with 58-60 U. S. Motor gasoline generally quoted at 2.875 to 3.25 cents. Quotations dropped 0.125 cent a gallon daily until Thursday when the market remained at 2.50 to 3 cents. The market at times was almost wholly one of quotations rather than sales. Refiners and marketers alike asserted they were able to dispose of only an occasional car in the open market. One important refiner said that in the last two weeks he had not sold more than 10 cars in the open market.

Trading of kerosine continued slow throughout the week. Demand for the heavier burning oils and result rising prices kept kerosine prices from receding appreciably, however.

The market for distillate and gas

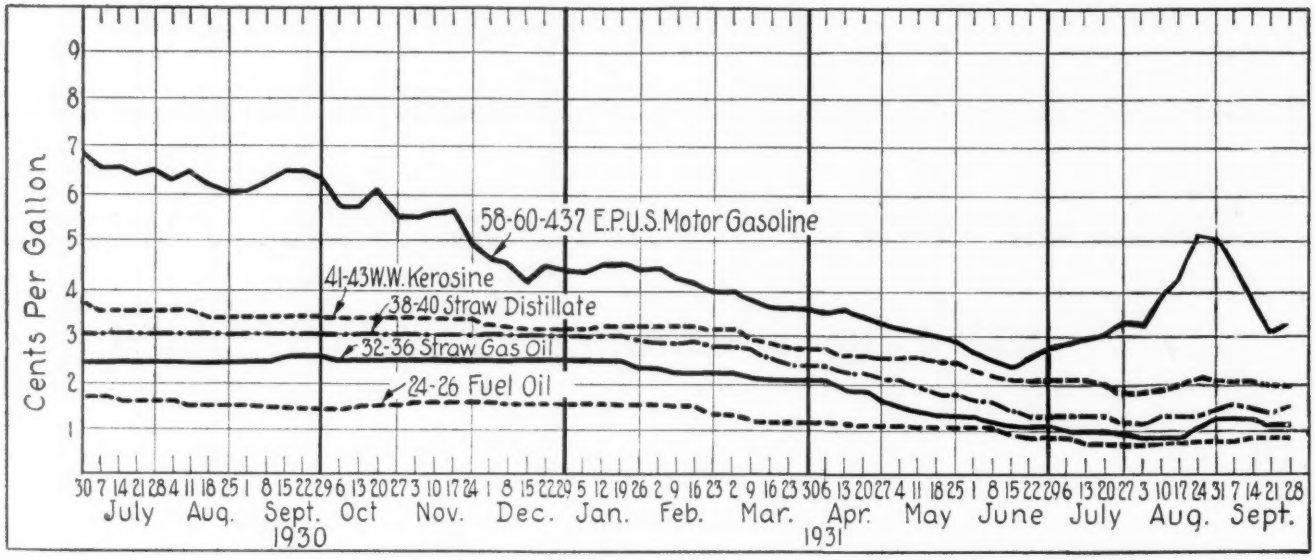
Summary of Group 3 Quotations for U. S. Motor Gasoline, 437 E.P.

In Effect Sept. 28

	Cents per Gallon
Oklahoma	3.00 -3.50
Kansas	3.00 -3.25
North Texas	3.00 -3.375
West Texas	3.00 -3.25
Louisiana-Arkansas	3.00 -3.25
Indiana-Illinois	2.625-3.25

Prices are those quoted on the basis of f.o.b. Group 3 by refiners in the districts designated.

Current Prices of Principal Mid-Continent Refined Products



Prices shown are in Group 3 basis and extended to date shown in Refinery Market Table Section of this issue

oil was reported as being in excellent shape by practically all important traders of these oils. Mild weather the first few days of the week slowed up demand somewhat. The market nevertheless was free of distress offerings throughout the week. Resale agents reported that sources of supply were diminishing rapidly as jobbers sought to contract for their requirements over the winter months. Most contracts have been placed on a market-date-of-shipment basis.

Industrial demand for heavy fuels remained quiet. Prices were steady, however.

Correction.

Price of U. S. Motor gasoline in Ohio, as quoted by the Standard Oil Co. of Ohio in the refinery market table of NATIONAL PETROLEUM NEWS has been erroneously published at 7.50 cents, exclusive of 4 cent state tax.

That price has been 8 cents since Sept. 8. Prices are corrected in the refinery market table on page 74 of this issue.

Sinclair and Wilcox Close Refineries

TULSA, Sept. 26.—Two refining companies announced this week they were shutting down plants in the Mid-Continent and another announced the partial closing down of a plant.

The Sinclair Refining Co. announced that Oct. 1 it would close down its Kansas City, Kan. refinery. Company executives said, however, that the plant usually is shut down during the winter months when the gasoline demand drops. That plant is one of the older ones and is operated primarily as a "marginal" plant. The company has a more efficient plant at Coffeyville, Kan. which supplies the company's requirements in the winter months. While the freight from the Coffeyville plant to the area normally served by the Kansas City plant is slightly higher, it was pointed out that the lower cost of operation and the lower crude oil transportation costs offset that increase in deliveries.

H. F. Wilcox, president of the H. F. Wilcox Oil & Gas Co., has shut down his plant at Pampa, in the Texas Panhandle district, and has ordered crude runs curtailed at the Bristow, Okla. plant.

The Derby Oil Co. has curtailed operations drastically at its plant at Wichita.

Reports from north Texas indicate that with one two or three exceptions all plants in that area are shut down or are being operated at a very small percentage of their capacity.

Shipments From Southern California

LOS ANGELES, Sept. 24.—Shipments of bulk petroleums from southern California ports to Foreign and Atlantic Seaboard ports totaled 802,605 barrels for week ended Sept. 19, as compared with 1,144,659 barrels shipped from the same ports a week ago. Destination and quantity of shipments were as follows:

Destination	Crude	Gasoline	Diesel	Gas-Oil	Lub. Distillate	Oil Fuel	Total
Pacific For.	74,151	.....	46,870	18,576	4,660	117,027	256,624
Atlantic Dom.	.....	502,422	.....	.....	14,332	.....	516,754
Atlantic For.	.....	.....	29,227	.....	.....	.....	29,227

Prices A Year Ago

Sept. 29, 1930

	Oklahoma	Penna.
58-60 U. S. Motor Gasoline	6.3125	6.50-7.00
Grade A Natural Gasoline	6.00	.....
Kerosine (Okla. 41-43; Pa. 47 w. w.)	3.125-3.50	5.375-6.00
Fuel Oil (Okla. 24-26; Pa. 36-40)	$0.575-$0.65	4.00-4.25
Crude (Okla. 35-35.9)	$1.255	$2.30
Chicago tank wagon (including 3c tax)		16.00c

Bell O. & G. Cuts Crude

TULSA, Sept. 26.—Effective Sept. 23, Bell Oil & Gas Co. posted reduced prices for southern Oklahoma and north Texas crude. It is paying 26 cents for oil below 29 gravity; 28 cents for 29-29.9° and two cents additional for each higher degree up to 40° and above, which is 50 cents. This is a cut of 20 cents. The company has been buying around 3000 barrels daily in the territory affected.

Mid-Continent Refinery Markets

Inter-Refinery Buying Bolsters Gasolines

Staff Special

TULSA, Sept. 26

INTER-REFINERY buying late in the week of Sept. 21 to 26 caused some improvement in the Mid-Continent gasoline market. Most of the distress gasoline was taken off the market and quotations in several districts were advanced slightly.

The gasoline buying was done by several of the larger refiners in the Mid-Continent. Orders were placed for 150 to 200 cars, in 15 to 50 car lots. Refiners who had some excess stocks and had had some difficulty moving their production were the ones who obtained first call for the business.

This buying on the part of several of the larger companies was taken here as an indication crude runs would be curtailed considerably beginning with October, and that the refiners would obtain much of their "blue" gasoline for their own retail outlets in the open market. It was pointed out that with gasoline prices at their present levels as compared with the prevailing crude oil prices it was more economical to buy gasoline in the open market than it was to refine the gasoline, particularly that sold through third grade pumps.

The effect of the buying, which developed late in the week, was to clear up virtually all the U. S. Motor grade quoted at less than 3 cents a gallon. Higher gravities were not affected to any noticeable extent.

Prior to the development of this buying the market marked time the early part of the week. Oklahoma and Kansas refiners encountered considerable competition from other areas. The North Texas area, however, was not as large a factor in gasoline sales this week as it has been previously. This was attributed to the fact that several plants were virtually shut down early in the week. One or two plants which had been pushing gasoline at whatever price it would bring, banked the fires under the stills and ceased charging raw crude. Some rerun operations were carried on but the output of gasoline from those plants was reduced considerably before the end of the week.

East Texas refiners made little change in their operations. Only two companies were charging any appreciable amount of crude. Reports from that district indicated some of the plants were having increasing difficulty obtaining crude, and those who did get crude had to pay the posted price, with the result that there was no profit in operating, with market prices at their present levels.

Natural gasolines did one of the usual rapid about turns this week. Demand early in the week was comparatively light and some distress gasoline in Texas began to appear. That was quickly absorbed by other manufacturers who already had experienced a sizeable increase in demand from regular accounts. A considerable amount was bought by a large refining company for shipment north, and by the middle of the week, material was comparatively scarce for immediate shipment.

Distillate demand showed some improvement in the course of the week. The buying was undoubtedly in preparation for the colder weather which is likely to spread over the northern part of the territory any day now. It will take at least one cold snap, however, to cause any appreciable increase in buying, refiners say. Prices in Oklahoma advanced 0.125 cent late in the week.

Kerosine buying was larger in volume in some quarters but generally speaking demand remained about on the levels that have prevailed for several weeks. No changes were noted in prices.

Zero cold test gas oils were scarce in the Mid-Continent, according to buyers. The ordinary gas oils were available in a few quarters but most refiners continued to hold their gas oils in storage for possible cracking stock in the event crude becomes any scarcer.

Fuel oils generally were unchanged in prices with the exception of the high gravity, low cold test grades. There was an exceptionally good demand for the 28-30 zero fuel oil with material reported scarce for prompt shipment.

Bright stocks prices were unchanged this week although demand was exceptionally good as compared with the stocks available for prompt shipment. Several refiners reported they were still out of the market.

Neutral oils also were active at new price levels established a week ago.

No changes were noted in wax prices.

Diamond Club Meets

TULSA, Sept. 26.—The first annual meeting of the Tulsa service station men's "Diamond Club," composed of employes of the Mid-Continent Petroleum Corp., was held at the Pennant terminal the evening of Sept. 23.

R. W. McDowell, vice president in charge of marketing; Lucien Graham Jr., southern division manager, and N. B. York of the manufacturing department, were the principal speakers. A 30-minute program of entertainment, "The Diamond Follies," concluded the program.

Northwest Jobbers Meet In January

MINNEAPOLIS — Annual conventions for both the Minnesota and North Dakota divisions of the Northwest Petroleum Association are: North Dakota, Jan. 11 and 12 at the Waldorf Hotel, Fargo; Minnesota Jan. 14 and 15 at the Radisson Hotel, Minneapolis.

Indian State to Build Plant in Alabama

RICHMOND, Va., Sept. 25.—A $100,000 oil refining plant has been decided on by the Indian State Oil Co. of Oklahoma, to be built soon at Huntsville, Ala., according to reports recently received.

J. W. Sappington, of that company has been in Huntsville for some time negotiating for a plant site and looking after other matters concerning the new project. Two sites are under consideration by the company, but so far no final decision has been made. Details of the plant have not yet been made public.

This company is also reported to be erecting a 1000-barrel skimming plant at Gladewater, East Texas, to operate on crude from that locality.

Sinclair Dismantles Old Cushing Refinery

TULSA, Sept. 26.—The Sinclair Refining Co. plant at Cushing is being dismantled and useable parts are being sent to Fort Worth where the old Pierce plant is being remodeled and enlarged. The Cushing plant was leased about two years ago by the Globe Oil & Refining Co. and used to top west Texas crude oil moved through the Shell Petroleum Co.'s line to Arkansas City, Kan. and Wood River, Ill. The Globe company turned the gasoline back into the pipeline to lighten the crude and sold the fuel oil. The lease expired several months ago and was not renewed.

The storage tanks at the Cushing plant will not be moved, but will be used for crude storage.

Chicago Tank Car Market

CHICAGO, Sept. 26

DEMAND for gasoline remained quiet in the Chicago market in the week just ended. Prices receded approximately 0.375 cent a gallon. Favorable news from the Mid-Continent late in the week created a better feeling among the Chicago trade but up to the close of business Sept. 26 prices in Chicago had not shown any appreciable improvement.

Kerosine prices generally were unchanged. Heavier burning oils for domestic heating were fairly active; prices displayed rising tendencies late in the week. Demand for industrial fuels was quiet.

Following prices represent majority of sales to jobbers on Group 3 freight basis, although shipments may originate in other refining districts such as North, West and East Texas, Louisiana, Arkansas, Indiana, Illinois, Kentucky, etc.

	Prices Sept. 28	Prices Sept. 21	Prices Sept. 14
50-52, 437 e.p. naphtha	2.50 – 2.75	2.75 – 3.00	3.50 – 3.75
58-60 U. S. Motor, 437 e.p.	2.50 – 3.00	2.75 – 3.25	3.50 – 3.75
Anti-knock gasoline 60-69 Octane Number	2.875– 3.375	3.25 – 3.75	3.75 – 4.25
Anti-knock gasoline, 70 Octane Number and above	3.375– 3.875	4.00 – 4.375	4.50 – 5.00
60-62, 437 e.p. gasoline	2.625– 3.00	2.875– 3.375	3.50 – 4.00
60-62 400 e.p. gasoline	2.875– 3.25	3.125– 3.50	3.75 – 4.25
64-66 375 e.p. gasoline	3 50 – 3.75	3.50 – 3.75	4.00 – 4.375
68-70 350-360 e.p. gasoline	†3.875– 4.25	3.75 – 4.25	4 25 – 4.75
*Domestic Aviation Gasoline	4.75 – 5.00	4.75 – 5.25	6.00 – 6.50
41-43 w.w. kerosine	1.75 – 1.875	1.75 – 1.875	1.875– 2.00
42-44 w.w. kerosine	2.00 – 2.125	2.00 – 2.125	2.00 – 2.25
38-40 p. w. distillate	1.50 – 1.625	1.50	1.50
38-40 straw distillate	1.375– 1.625	1.375– 1.50	1.375– 1.50
32-36 ordinary dark gas oil	1.00 – 1.125	1.00 – 1.125	1.00 – 1.25
32-36 dark zero gas oil	†1.375– 1.50	†1.375– 1.50	†1.25 – 1.375
32-36 straw zero gas oil	1.375– 1.50	1.375– 1.50	1.375– 1.50
28-30 zero fuel oil (per bbl.)	†$0.45 –$0.475	†$0.45 –$0.475	†$0.425–$0.475
28-30 fuel oil (per bbl.)	$0.35 –$0.40	$0.35 –$0.40	$0.35 –$0.40
24-26 fuel oil (per bbl.)	$0.275–$0.30	$0.275–$0.30	$0.275–$0.30
18-22 fuel oil, (per bbl.)	$0.225–$0.25	$0.225–$0.25	$0.225–$0.25
18-22 zero fuel oil (per bbl.)	$0.25 –$0.30	$0.25 –$0.30	$0.25 –$0.30
14-16 fuel oil (per bbl.)	$0.20 –$0.225	$0.20 –$0.225	$0.20 –$0.225

*Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% recovery at 221°; 90% at 311°; 96% at 347°; end point 374° F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

†Nominal.

Omaha Price War Cuts Gasoline To 8.9 Cents Per Gallon

OMAHA, Nebr., Sept. 27

GASOLINE is being retailed at some Omaha service stations as low as 8.9 cents including 4 cents state tax, 2.8 cents freight from Group 3 and .03 cent inspection fee. This is a net back of 2.69 cents a gallon Group 3 without permitting any handling and marketing costs between refiner and consumer.

Standard Oil Co. of Nebraska is selling its third grade, which it has in only a few stations in Nebraska, at 8.9 cents in Omaha. This is the price of the cheaper of two grades sold at the stations of L. L. Coryell of Lincoln who is operating low price stations in five farm belt states. Coryell is selling another grade at 11.9 cents, including 4-cent state tax. Before he had third grade competition his price was 10.9 cents.

Shell, through its Omaha distributor, has put in a third grade but is posting 9.9 cents. Several other large companies are selling third grades at 8.9 and 9.9 cents. Regular grades are selling at 14.7 cents and Ethyl at 17.9 cents. The "normal" price for regular gasoline in Omaha is said to be 16.25 cents.

Coryell has been engaging in a handbill campaign against a large company to whom he refers as a "trust." Recently he has announced a cut price for furnace oil—a one-third reduction, said a handbill announcement. The actual price was not stated.

The campaign, it is the consensus here, is directed against the Standard Oil Co., but the Standard does not market furnace oils in Omaha. A large part of that business, oil men say, is done by the Updike Lumber & Coal Co., operated by an old friend of Mr. Coryell.

In a recent "dodger" the L. L. Coryell Marketing Co. dared the "big trust," as it termed its unnamed adversary, to explain the following:

"1. We dare it to put up honest signs and let the public know what it is selling its various gasoline for.

"2. We dare it to submit with us samples of its fuel oils to the Omaha Testing Laboratories for comparison of quality.

"3. We dare it to explain why it sells its gasoline in Omaha for 3c to 5c less than it sells it elsewhere.

"4. We dare it to explain why it has sold distillate for almost 2c more than its gasoline, when distillate is actually worth about 4c less than gasoline.

"5. We dare it to promise the public that, if we close our stations in Omaha, it will not raise gasoline prices.

"6. We dare it to say whether or not it maintains a lobby in the legislature.

"7. We dare it to give the analysis of its blue and white gasoline, and explain the difference in price.

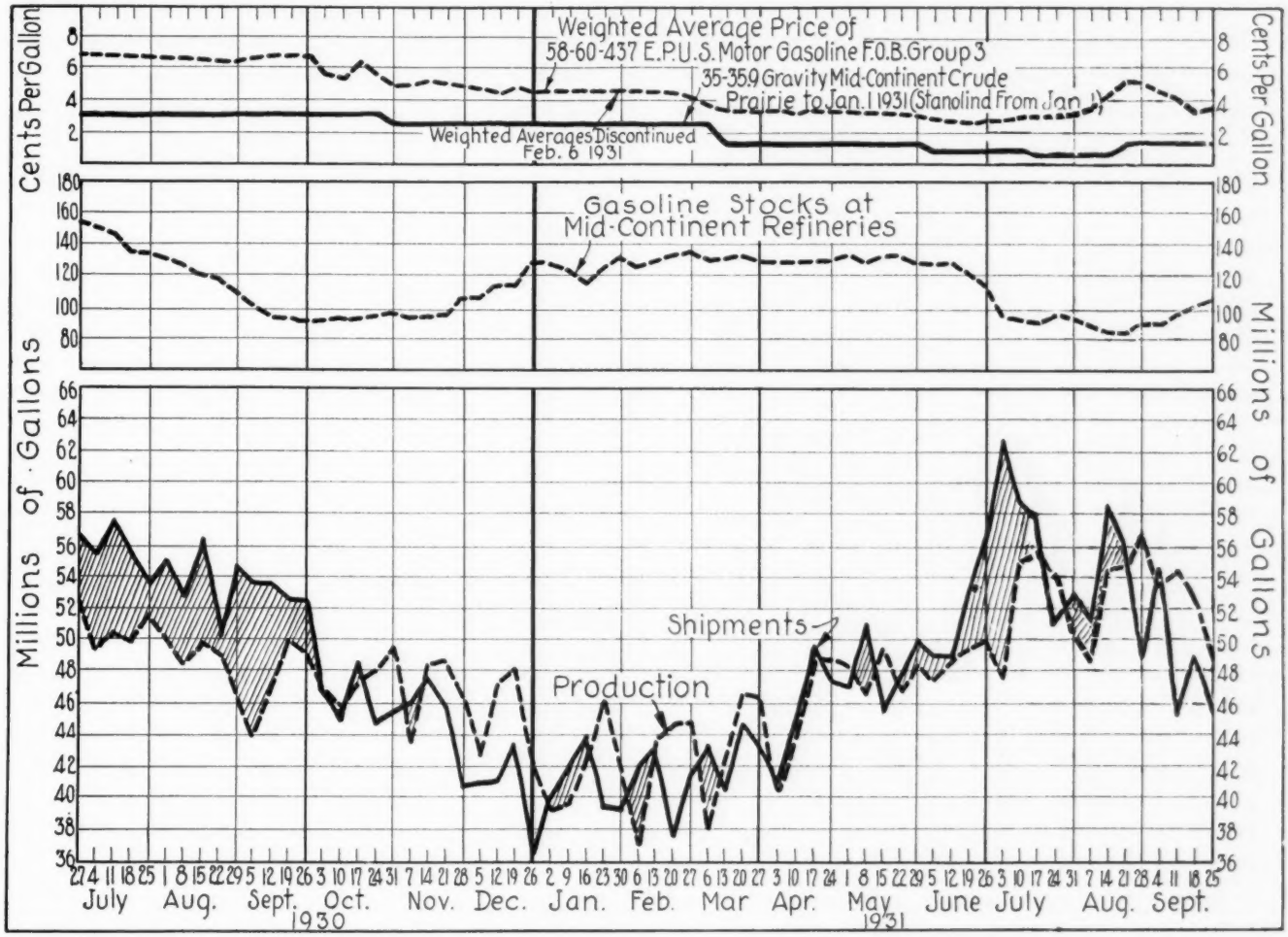
"8. We dare the big trust to deny that its national advertising costs three cents a gallon which, in turn, is charged up to the customer."

The Texas Co. is the only distributor of a nationally advertised gasoline in Omaha but it is not believed here to be the object of the Coryell arrows.

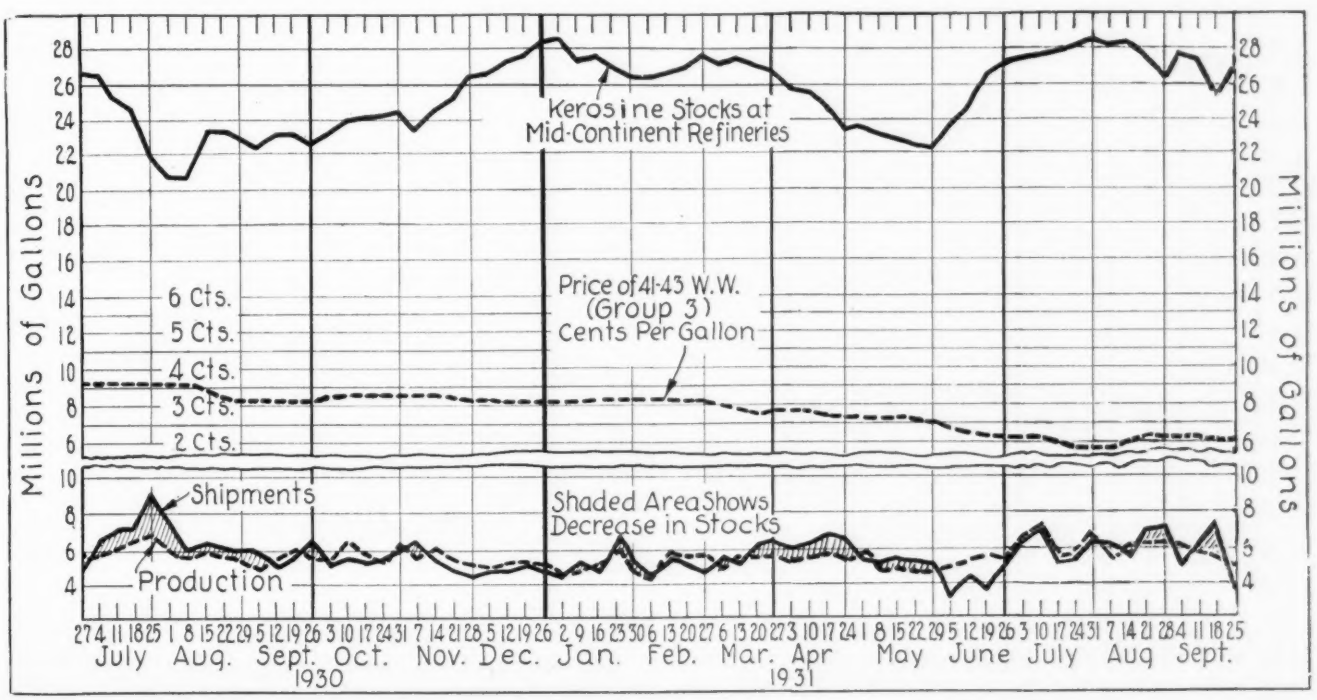
In Lincoln, Earl Coryell, nephew of L. L., with one station selling at 10.9 cents including tax, is described as having laughed the third grade of gasoline out of the Nebraska capital. He has the busiest station in Lincoln, located close to the center of the main business district.

Barometer of Mid-Continent Refinery Market—Week Ending September 25

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Cents Per Gallon
Weighted Average Price of
58-60-437 E.P.U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude
Prairie to Jan. 1 1931 (Stanolind From Jan. 1)
Weighted Averages Discontinued Feb. 6 1931
Gasoline Stocks at Mid-Continent Refineries
Millions of Gallons
Shipments
Production
July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar Apr May June July Aug. Sept.
1930
1931

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 66



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown in tank car lots, f.o.b. Refinery. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices Sept. 28	Prices Sept. 21	Prices Sept. 14
48-50 450 e.p. naphtha...	†2.75	†2.75	†3.50
50-52 450 e.p. naphtha...	†2.75	†2.75	†3.50
56-58 450 e.p. gasoline...	†2.75	†2.75	†3.50
58-60 450 e.p. gasoline...	†2.75	†2.75	†3.50
58-60 U.S. Motor 437 e.p.	3.00 – 3.50	2.875– 3.25	3.625– 4.125
60-62 437 e.p. gasoline...	3.125– 3.50	3.00 – 3.25	3.75 – 4.125
60-62 400 e.p. gasoline...	3.375– 3.625	3.25 – 3.50	3.875– 4.25
64-66 390 e.p. gasoline...	3.50 – 3.75	3.50 – 3.75	4.125– 4.50
64-66 375 e.p. gasoline...	3.75 – 4.00	3.75 – 4.00	4.25 – 4.75
68-70 350-360 e.p. gasoline	4.00 – 4.25	4.00 – 4.25	4.625– 4.875
‡Domestic Aviation Gasoline.....	4.25 – 4.75	5.25 – 5.50	6.25 – 6.50

‡Prices based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% rec. at 221°; 90% at 311°; 96% at 347°; end point, 374°F. Fighting grade in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

52-54 Naphtha.....	4.50 – 4.75	4.75 – 5.00	4.75 – 5.00
54-56 Naphtha.....	4.75 – 5.00	5.00 – 5.25	5.00 – 5.25
58-60 U.S. Motor 437 e.p.	5.00 – 5.50	5.25 – 5.625	5.50 – 5.75
60-62 400-410 e.p. gasoline	5.00 – 5.50	5.50 – 5.75	5.625– 5.875
64-66 390 e.p. gasoline...	5.25 – 5.75	5.75 – 6.00	6.00 – 6.25
68-70 350-360 e.p.....	5.75 – 6.25	6.00 – 6.50	6.00 – 6.50

OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)

U. S. Motor Gasoline			
Ohio, delivery at any point.....	8.00	8.00	8.00

KANSAS (F. o. b. refinery Kansas destination)

58-60 U.S. Motor 437 e.p.	3.375– 3.75	4.00 – 4.25	4.125– 4.75
60-62 437 e.p. gasoline...	3.50 – 3.875	4.125– 4.375	4.50 – 5.00
60-62 400 e.p. gasoline...	3.75 – 4.00	4.25 – 4.50	5.00 – 5.25
64-66 375 e.p. gasoline...	4.00 – 4.25	4.375– 4.625	5.50

NORTH TEXAS (F. o. b. North Texas refineries)

56-58 450 e.p. gasoline...	†2.75	†2.75	†3.375– 3.50
58-60 450 e.p. gasoline...	†2.75	†2.75	†3.375– 3.50
58-60 U.S. Motor 437 e.p.	3.00 – 3.375	2.875– 3.125	3.50 – 3.75
60-62 400 e.p. gasoline...	3.375– 3.50	3.125– 3.375	†3.75 – 4.00
64-66 390 e.p. gasoline...	3.50 – 3.75	3.25 – 3.50	4.00 – 4.25
64-66 375 e.p. gasoline...	3.75 – 4.00	3.375– 3.625	4.25 – 4.625
68-70 350-360 e.p. gasoline	4.00 – 4.25	3.625– 3.875	†4.50 – 4.75

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

50-52 naphtha.....	†2.875	†2.875	†3.25
58-60 437 e.p. gasoline...	2.875– 3.00	2.875	†3.25 – 3.50
58-60 U.S. Motor 437 e.p.	3.00 – 3.25	2.875– 3.125	†3.50 – 3.75

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

58-60 U.S. Motor 437 e.p.	3.50	3.50	4.50

ARKANSAS (Ark., N. La. and Miss. destination)

58-60 U.S. Motor 437 e.p.	3.50	3.50	4.50

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

54-58 U.S. Motor 437 e.p.	6.50 – 8.50	6.50 – 8.50	4.75 – 8.50
54-58 U.S. Motor, for outside state shipment....	5.00 – 6.00	5.00 – 6.00	5.00 – 6.00
58-61 375-400 e.p. gasoline	9.00 –10.50	9.00 –10.50	9.00 –10.50
42-45 Engine Distillate 445-480 e.p.....	7.00 – 8.00	7.00 – 8.00	5.00 – 7.00

NATURAL GASOLINE

(Note: End point of all grades, not over 375F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA (F. o. b. Oklahoma refineries)

Grade AA, 80-87.9, 90% Recovery.....	4.00	†4.00	†4.00
Grade A, 72-79.9, 90% Recovery.....	†4.00 – 4.25	†4.00 – 4.25	†4.00 – 4.25
Grade BB, 84-92, 85% Recovery.....	†4.00	†4.00	†4.00
Grade B, 76-83.9, 85% Recovery.....	†4.00	†4.00	†4.00
Grade C, 80-92, 78% Recovery	†4.00	†4.00	†4.00
Grade 26-70.....	4.00	4.00	4.00

†Prices nominal ††Only one refiner quoting *Quotations only

NORTH TEXAS (F. o. b. Breckenridge)

	Prices Sept. 28	Prices Sept. 21	Prices Sept. 14
Grade AA, 80-87.9, 90% Recovery.....	3.75	†3.75	†3.75
Grade A, 72-79.9, 90% Recovery.....	†3.75 – 3.875	†3.75 – 3.875	†3.75 – 4.00
Grade BB, 84-92, 85% Recovery.....	†3.75	†3.75	†3.75
Grade B, 76-83.9, 85% Recovery.....	†3.75	†3.75	†3.75
Grade C, 80-92, 78% Recovery	†3.75	†3.75	†3.75
Grade 26-70.....	3.75	3.75	3.75

NORTH LOUISIANA (F. o. b. Monroe District)

Grade AA.....	†4.00	†4.00	†4.00
Grade BB.....	†3.75 – 4.00	†3.75 – 4.00	†3.75 – 4.00
Grade C.....	†3.75 – 4.00	†3.75 – 4.00	†3.75 – 4.00

CALIFORNIA (F. o. b. California refineries)

75-85, 375-390 e.p. for blending.....	4.625– 5.50	4.50 – 5.50	4.50 – 5.50

BURNING OILS

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

45 w.w. kerosine.....	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75
46 w.w. kerosine.....	3.625– 4.00	3.625– 4.00	3.625– 4.00
47 w.w. kerosine.....	3.875– 4.25	3.875– 4.25	3.875– 4.25

OKLAHOMA (F. o. b. Oklahoma refineries)

41-43 w.w. kerosine.....	1.875– 2.125	1.875– 2.125	2.00 – 2.25
42-44 w.w. kerosine.....	2.00 – 2.25	2.00 – 2.25	2.125– 2.375

KANSAS (F. o. b. refinery Kansas destination)

41-43 w.w. kerosine.....	2.25 – 2.375	2.25 – 2.375	2.25 – 2.50
42-44 w.w. kerosine.....	2.375– 2.50	2.375– 2.50	2.50 – 2.75

NORTH TEXAS (F. o. b. North Texas refineries)

40-42 w.w. kerosine.....	1.75 – 1.875	1.75 – 1.875	1.875– 2.00
41-43 w.w. kerosine.....	1.875– 2.125	1.875– 2.125	2.00 – 2.125

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosine.....	2.25 – 2.375	2.25 – 2.50	2.50

ARKANSAS (Ark., N. La. and Miss. destination)

41-43 w.w. kerosine.....	2.25 – 2.375	2.25 – 2.50	2.50

CALIFORNIA (F. o. b. California refineries)

38-40 w.w. kerosine.....	4.00 – 5.00	4.00 – 5.00	4.00 – 5.00

NEUTRAL OIL

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

Vis.	(Viscosity at 70° F.)		
200 No. 3 color, 420-425 flash.....	21.00 –22.00	21.00 –22.00	21.00 –22.00
180 No. 3 color, 410-415 flash.....	†19.50 –20.00	.....	.....
150 No. 3 color, 400-405 flash.....	17.50 –18.00	†17.50 –18.00	†17.50 –18.00

****MID-CONTINENT** (F. o. b. Mid-Continent refineries)

Vis. Color	(Viscosity at 100° F.)		
100—No. 2.....	4.75	4.75	4.25 – 4.75
150—No. 3.....	6.75 – 7.00	6.75 – 7.00	6.00 – 6.25
150—No. 4.....	6.25	6.25	5.75
180—No. 3.....	8.75	8.75	8.00
180—No. 4.....	8.00 – 8.25	8.00 – 8.25	7.25 – 7.50
180—No. 5.....	7.50	7.50	7.00
200—No. 3.....	9.25 – 9.75	9.25 – 9.75	8.50
200—No. 4.....	9.00 – 9.25	9.00 – 9.25	8.25 – 8.375
200—No. 5.....	8.50 – 8.75	8.50 – 8.75	8.00 – 8.25
220—No. 3.....	9.50 – 9.75	9.50 – 9.75	9.25 – 9.50
220—No. 4.....	9.00	9.00	8.75
220—No. 5.....	8.50	8.50	8.25
240—No. 3.....	11.00	11.00	10.00 –10.50
240—No. 4.....	10.25	10.25	9.50 –10.00
240—No. 5.....	9.75	9.75	9.00 – 9.50
280—No. 3.....	12.00	12.00	11.75
280—No. 4.....	11.00 –11.25	11.00 –11.25	10.75 –11.25
280—No. 5.....	10.75 –11.00	10.75 –11.00	10.00 –10.75

Note: Quotations for 0 to 10 cold test neutral oils are ¼ to ½c higher depending on the grade.

****Prices represent Quotations and Sales.**

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown in tank car lots, f.o.b. Refinery. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL (F. o. b. Gulf Coastal refineries)

Vis. Color	Prices Sept. 28	Prices Sept. 21	Prices Sept. 14
	(Viscosity at 100° F., pour test 0)		
100—No. 2 Pale	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
200—No. 3 Pale	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
300—No. 3 Pale	8.00 – 8.25	8.00 – 8.25	8.00 – 8.25
500—No. 3½ Pale	9.00 – 9.25	9.00 – 9.25	9.00 – 9.25
750—No. 4 Pale	10.00 –10.25	10.00 –10.25	10.00 –10.25
1200—No. 4 Pale	12.00 –12.25	12.00 –12.25	12.00 –12.25
2000—No. 4-5 Pale	13.00 –13.25	13.00 –13.25	13.00 –13.25
200—No. 5½ Red Oil	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
300—No. 5½ Red Oil	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
500—No. 6 Red Oil	8.00 – 8.25	8.00 – 8.25	8.00 – 8.25
750—No. 6 Red Oil	9.00 – 9.25	9.00 – 9.25	9.00 – 9.25
1200—No. 5-6 Red Oil	11.00 –11.25	11.00 –11.25	11.00 –11.25
2000—No. 6 Plus Red Oil	13.00 –13.25	13.00 –13.25	13.00 –13.25

CALIFORNIA (F. o. b. California refineries)

Vis. Color	(Viscosity at 100° F.)		
100—No. 3	8.00	8.00	8.00
200—No. 3	10.00	10.00	10.00
300—No. 3	10.50	10.50	10.50
450—No. 3	12.00	12.00	12.00
550—No. 3	13.50	13.50	13.50
600—No. 3	13.50	13.50	13.50
200—No. 5	10.00	10.00	10.00
300—No. 5	10.50	10.50	10.50
400—No. 5	12.00	12.00	12.00
500—No. 5	13.00	13.00	13.00
600—No 5	13.50	13.50	13.50
700—No. 7	13.50	13.50	13.50

CYLINDER STOCKS

MID-CONTINENT (F. o. b. Mid-Continent refineries)

(Cylinder stock prices represent quotations and sales to domestic jobbers only).

190-200 Vis. D at 210° Brt. St.	20.50	20.50	20.50
150-160 Vis. D at 210° Brt. St., 0-10 cold test	20.00 –20.50	20.00 –20.50	18.50
150-160 Vis. D at 210° Brt. St., 10-25 cold test	19.50 –20.00	19.50	18.00
150-160 Vis. D Brt. Stock, 25-40 cold test	18.50 –19.00	18.50 –19.00	17.50
150-160 Vis. E 210° Brt. St.	19.00	19.00	17.00 –17.50
600 St. Ref. Olive Green	5.50 – 6.50	5.50 – 6.50	6.00 – 7.00
600 St. Ref. Dark Green	4.50 – 5.50	4.50 – 5.50	5.00 – 6.00
Black Oil	3.75 – 4.25	3.75 – 4.00	3.75 – 4.00

PENNSYLVANIA (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

600 Steam Refined, filterable	†14.00 –15.00	†14.00 –15.00	†14.00 –15.00
650 Steam Refined	†18.00 –19.00	†18.00 –19.00	†18.00 –19.00
600 Flash	†20.00 –21.50	†20.00 –21.50	†20.00 –21.50
630 Flash	23.00 –25.00	23.00 –25.00	†22.00 –25.00
600 Warren E	†18.50 –19.00	†18.50 –19.00	†18.50 –19.00
Cold Test Stocks, 140-150 vis. at 210°, 540-550 flash,			
No. 8 color, 20 pour test and below	29.50 –31.00	30.00 –31.50	30.00 –31.50
No 8 color, 25 and 35 pour test	28.00 –30.00	29.00 –31.00	30.00 –31.00
No. 8 color, 40 pour test and above	28.00 –29.00	29.00 –30.00	29.00 –30.00

WAX

PENNSYLVANIA (Per pound, F. o. b. New York)

122-124 white crude scale a.m.p.	2.00 – 2.125	1.90 – 2.125	1.90 – 2.00
124-126 white crude scale, a.m.p.	2.00 – 2.125	1.90 – 2.125	1.90 – 2.00

****OKLAHOMA** (Per pound in barrels; in a few instances, per pound in burlap bags; F. o. b. Oklahoma refineries.)

124-126 White Crude Scale, a.m.p.	1.75 – 1.875	1.75 – 1.875	1.75 – 1.875

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	2.75 – 3.125	2.75 – 3.125	2.75 – 3.00

†Prices nominal ††Only one refiner quoting *Quotations only

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices Sept. 28	Prices Sept. 21	Prices Sept. 14
38-40 straw distillate	1.50 – 1.625	1.375– 1.50	1.50
36-38 straw distillate	†1.375– 1.50	†1.375	†1.375
32-36 straw gas oil	1.125– 1.25	1.125– 1.25	1.25
32-36 straw gas oil zero	†1.50 – 1.625	†1.50 – 1.625	†1.50 – 1.625
32-36 dark gas oil	1.125– 1.25	1.00 – 1.25	†1.125– 1.25
32-36 dark gas oil zero	†1.375– 1.50	†1.375– 1.50	†1.375– 1.50
28-30 zero fuel oil(per bbl.)	$0.475–$0.50	$0.45 –$0.475	$0.425–$0.45
28-30 fuel oil (per bbl.)	$0.40 –$0.425	$0.40 –$0.425	$0.40 –$0.425
26-28 fuel oil (per bbl.)	$0.375–$0.40	$0.375–$0.40	$0.375–$0.40
24-26 fuel oil (per bbl.)	$0.325–$0.35	$0.325–$0.35	$0.325–$0.35
22-26 fuel oil (per bbl.)	$0.275–$0.325	$0.275–$0.325	$0.275–$0.325
18-22 fuel oil (per bbl.)	$0.25 –$0.275	$0.25 –$0.275	$0.25 –$0.275
16-20 fuel oil (per bbl.)	$0.225–$0.275	$0.225–$0.275	$0.225–$0.275
14-16 fuel oil (per bbl.)	$0.20 –$0.25	$0.20 –$0.25	$0.20 –$0.25

KANSAS (F. o. b. refinery Kansas destination)

38-40 straw distillate	1.875– 2.00	1.875– 2.00	1.875– 2.00
36-38 straw distillate	1.75	1.75	1.75
32-36 straw gas oil	1.375– 1.50	1.375– 1.50	1.375– 1.50
18-22 fuel oil (per bbl.)	$0.325–$0.375	$0.325–$0.375	$0.275–$0.375
10-14 fuel oil (per bbl.)	$0.30 –$0.325	$0.30 –$0.325	$0.275–$0.325

NORTH TEXAS (F. o. b. North Texas refineries)

38-40 straw distillate	1.50 – 1.625	1.375– 1.50	1.375– 1.50
38-40 p.w.treated distillate	1.625	1.50	1.50
32-36 gas oil, cracked	1.125– 1.375	1.125– 1.375	1.125– 1.375
32-36 St. reduced gas oil	1.125– 1.25	†1.125– 1.25	†1.25
24-26 fuel oil (per bbl.)	$0.325–$0.35	$0.30 –$0.35	$0.30 –$0.35
20-24 fuel oil (per bbl.)	$0.275–$0.30	$0.25 –$0.30	$0.25 –$0.30
18-22 fuel oil (per bbl.)	$0.225–$0.25	$0.225–$0.25	$0.225–$0.25

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment

30-32 gas oil	1.00 – 1.125	1.00 – 1.125	1.00 – 1.125
28-30 zero gas oil	1.00 – 1.125	1.00 – 1.125	1.00 – 1.125
18-22 fuel oil (per bbl.)	$0.25 –$0.30	$0.25 –$0.30	$0.225–$0.25

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	1.50 – 1.75	1.75 – 2.00	1.75 – 2.00
32-36 gas oil, straw	1.50 – 1.75	1.75 – 2.00	1.75 – 2.00
14-16 fuel oil (per bbl.)	$0.40 –$0.475	$0.40 –$0.475	$0.40 –$0.50

ARKANSAS (Ark., N. La. and Miss. destination)

32-36 gas oil, straw	1.50 – 1.75	1.75 – 2.00	1.75 – 2.00
32-36 dark gas oil	1.50 – 1.75	1.75 – 2.00	1.75 – 2.00
28-30 gas oil	1.375– 1.625	1.75	1.75
20-24 fuel oil (per bbl.)	$0.50 –$0.575	$0.50 –$0.575	$0.50 –$0.60
9-12 fuel oil (per bbl.)	$0.40 –$0.45	$0.35 –$0.425	$0.35 –$0.45
Black oil	3.00	3.00	3.00

CALIFORNIA (F. o. b. San Joaquin Valley. Nominal pipe line charge to San Francisco 24c per bbl. more and to San Pedro 20c per bbl. more.)

14-18 fuel oil (per bbl.)	$0.40 –$0.55	$0.40 –$0.55	$0.40 –$0.55
14-18 Bunker oil (per bbl.)	$0.50 –$0.75	$0.50 –$0.75	$0.50 –$0.75
30-34 gas oil (per bbl.)	$0.75 –$0.90	$0.75 –$0.85	$0.65 –$0.85
27 Plus Diesel oil (per bbl.)	$0.70 –$0.90	$0.75 –$0.85	$0.65 –$0.85

PETROLATUMS

PENNSYLVANIA (Per pound, in barrels, carload lots, f. o. b. Penna. refinery. In tank cars ½c to ¾c per pound less.) Two refiners quoting.

Snow White	6.125– 7.50	6.125– 7.50	6.125– 7.00
Lily White	5.125– 6.50	5.125– 6.50	5.125– 6.00
Cream White	4.125– 5.50	4.125– 5.50	4.125– 5.00
Light Amber	2.625– 3.25	2.625– 3.25	2.625– 2.75
Amber	2.375– 3.00	2.375– 3.00	2.375– 2.50
Red	2.00 – 2.75	2.00 – 2.75	1.875– 2.25

PETROLEUM COKE

****OKLAHOMA** (F. o. b. Oklahoma refineries)

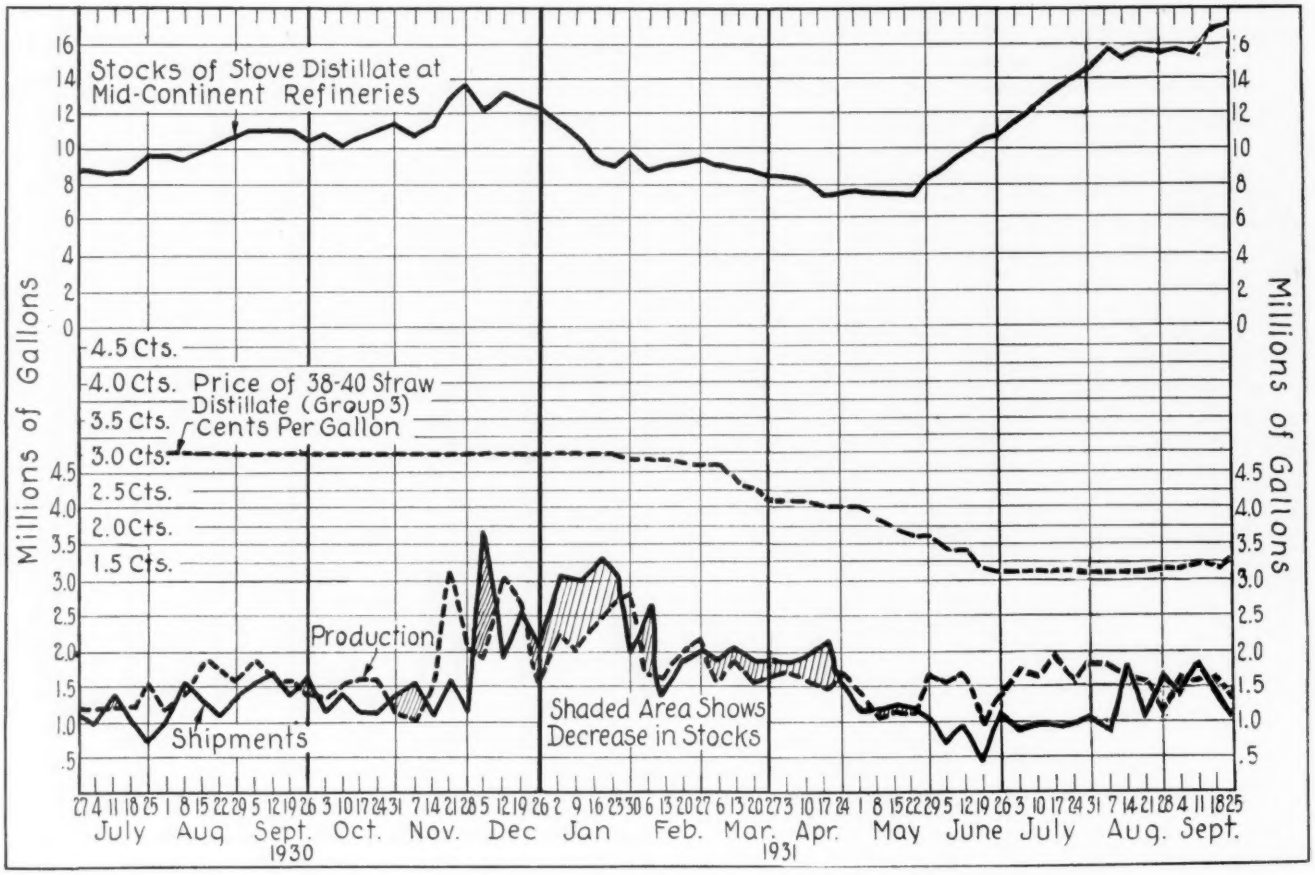
(Per ton in car lots)

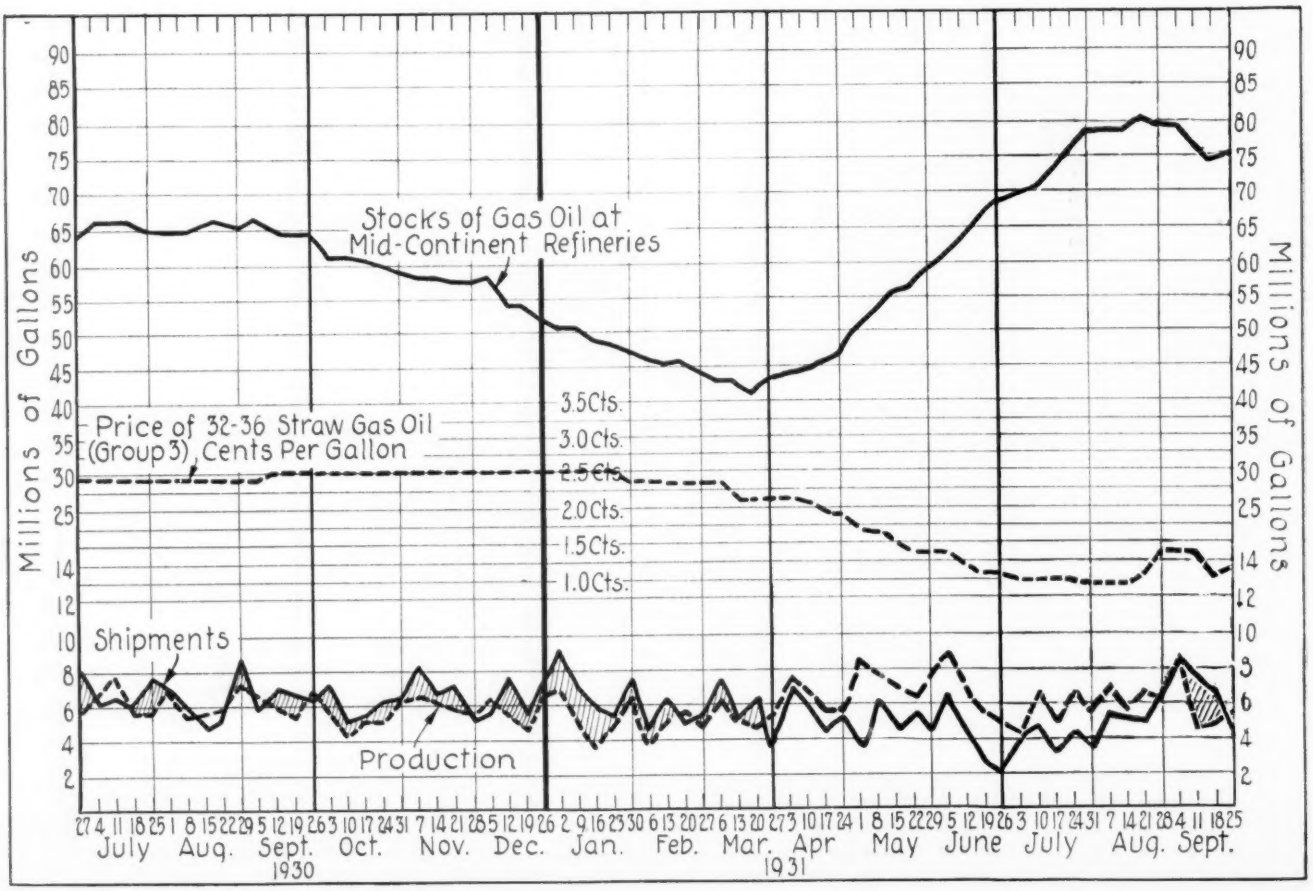
Lump	$3.00 –$4.00	$3.00 –$4.00	$3.00 –$4.00
Still run	$2.00 –$3.00	$2.00 –$3.00	$2.00 –$3.00
Breeze	$0.75 –$1.50	$0.75 –$1.50	$0.75 –$1.50

****Prices represent Quotations and Sales**

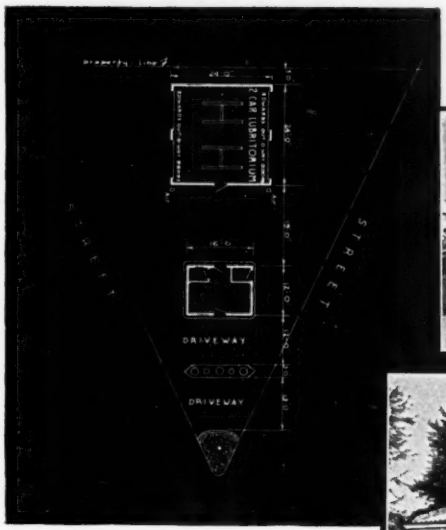
Barometer of Mid-Continent Refinery Market—Week Ending September 25

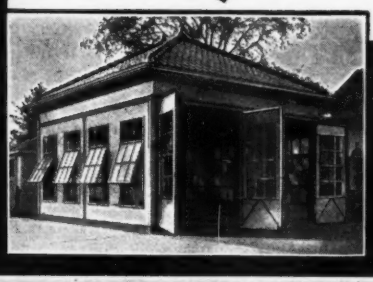
Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News

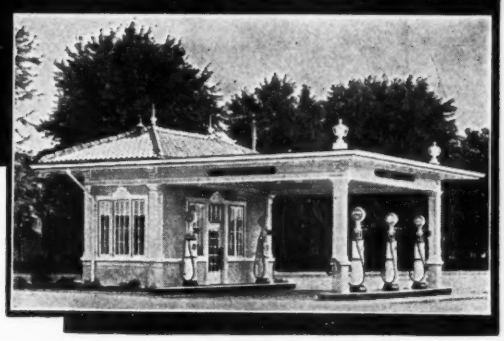




Your One-Stop Station as EDWARDS builds it, *Unit by Unit!*







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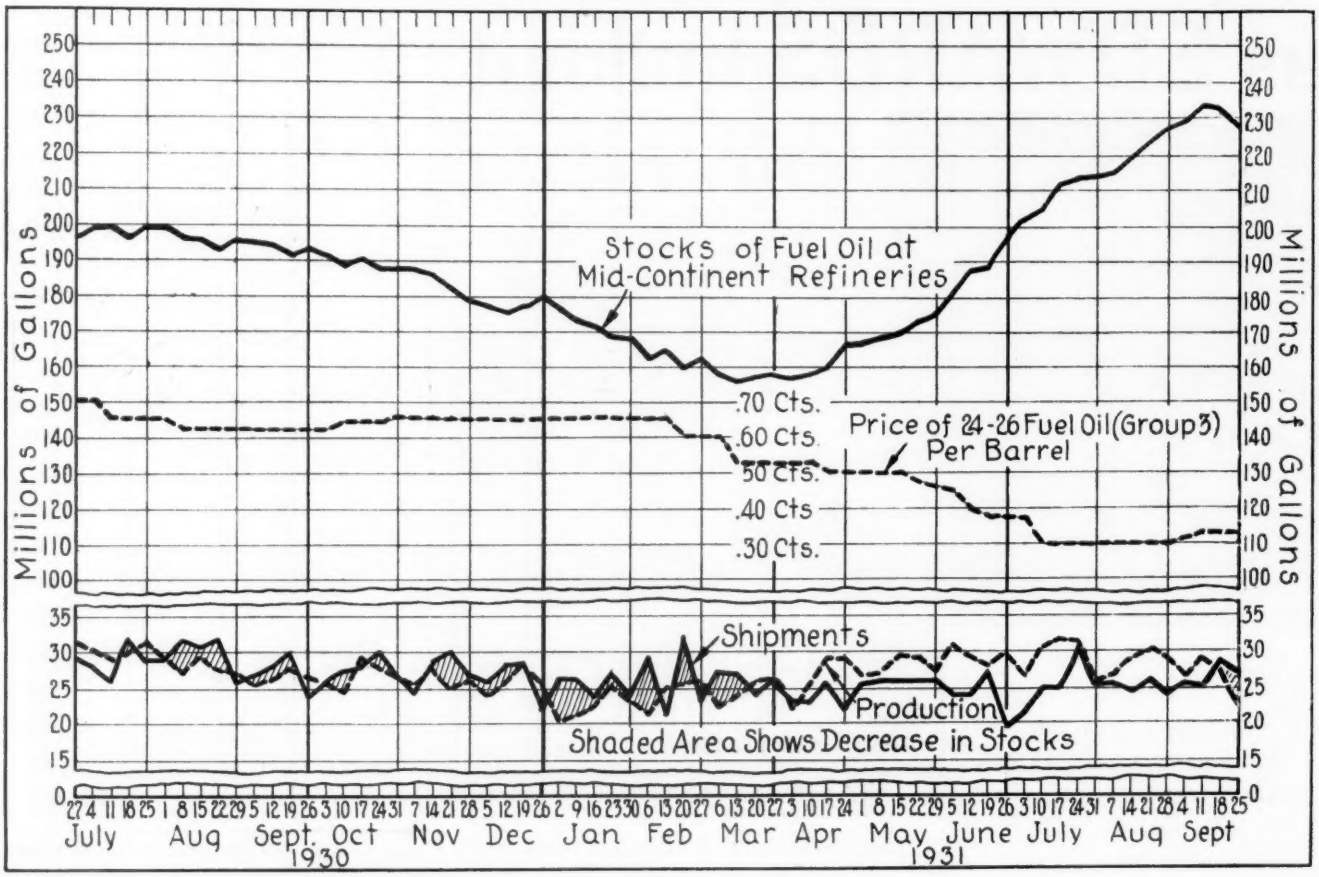
A. D. MILLER SONS' COMPANY
PITTSBURGH, PA.

Barometer of Mid-Continent Refinery Market—Week Ending September 25

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



California Refinery Market

Bulk Gas Oil Active; Gasoline Quiet

LOS ANGELES, Sept. 26

PACIFICCoast markets were generally unchanged the past week with inquiry for bulk California oils confined chiefly to gas oil, and with little or no interest shown by buyers in export gasoline.

Effective Sept. 24, Standard of California announced a reduction of 0.50 cent on each of its three postings on export U. S. Motor gasoline for intercoastal shipment. The new prices for gasolines of 65, 67, and 69 octane number, are 4.50, 4.75, and 5 cents, respectively, and are more in line with actual quotations recently reported made by California exporters.

Although confirmation is lacking, it was reported approximately half a million barrels of gas oil were sold at a price of $0.83 to $0.84 per barrel. One trader said the best price he had been able to develop on inquiry was $0.84 although it was his opinion that this could probably be shaded on a firm offer.

It was also reported that a part cargo of fuel oil had been moved to an East Indian buyer at a price of $0.53 to $0.55.

While a majority of traders thought this spread was below average quotations, it was also indicated that a considerable quantity of this commodity could probably be purchased at $0.55 on a firm offer. Diesel and fuel oils for bunkering purposes were in good demand with quotations for spot movement inclined to advance.

A spread of $0.75 to $1.00 was considered indicative of current quotations for spot movement of diesel oil, with fuel oil ranging at $0.58 to $0.65 for bunkering and $0.40 to $0.55 for tank car movement.

Domestically, the gasoline price situation was improving in southern California although many independent gasolines continued to retail at low levels. Tank car and tank truck-and-trailer quotations for gasoline ranged from 9.50 cents by small independent refiners to 10.50 and 10.75 cents by the larger companies in this group and to 11.50 cents by major refiners. These prices are exclusive of the state tax.

Retail prices that had ranged from 9 cents for "bootleg" motor fuel to 16 cents for major brands were improved late in the week with the spread shortened to 12.50 to 16 cents in a majority of instances.

No change was made in quotations on gasoline for out-of-state shipment, prices ranging from 5 to 6 cents. Increased demand for natural gasoline caused a slight advance in quotations, which ranged from 4.625 to 5.50 cents. Quotations for other commodities were unchanged.

Gasoline Import Valuations Changed in Canada

TORONTO, Sept. 25.—Revision of gasoline prices as the basis for estimation of import duties on motor fuels brought into Canada has been announced, based on the U. S., or wine, gallon of 231 cubic inches; as follows:

Pennsylvania, New York and district, which includes Atlantic sea-

board, 7.363 cents; Toledo, Detroit, Cleveland and district, 7.976 cents; Chicago and district, 6.876 cents; Minneapolis and district, 7.226 cents; Wood River, St. Louis and district, 6.476 cents; mid-Continent district, which includes the States of Oklahoma, Kansas, part of Missouri, part of Arkansas, and North Texas, 4.726 cents; South Texas, Louisiana and district, 6.276 cents; Wyoming and district, 4.726 cents; Montana and district 7.726 cents.

It is provided also that goods are not to be entered at less than their invoice values, nor less than the fair market value, as sold for home consumption.

The above prices are based on current prices of crude oil in the different fields.

Canadian oil refiners are apparently experiencing improved conditions as the latest reports show that gasoline importation has fallen by as much as 50 per cent. Taking into account smaller sales at service stations this year, a much larger proportion of the entire demand is being supplied by Canadian gasoline.

Pennsylvania Markets

Gasoline Quoted Lower

CLEVELAND, Sept. 26.—Gasoline markets continued to drop in Pennsylvania during the past week. Prices were lowered 0.25 cent on the 58-60 U. S. Motor, 0.5 cent on the 60-62 grade and 0.5 on the 64-66 grade. No relief from the low prices in the retail market situation caused lower prices in the refinery market, according to trade reports.

Kerosine demand continued fair to good depending on the district. Prices remained unchanged at the previous weeks' levels.

Fuel oil remained generally unchanged from the standpoint of activity. The top price of the range advanced to 3.125 cents. Some refiners and brokers reported a scarcity of fuel oil in one district.

Bright stock continued to sell fairly well. Prices for the high pour test stock were lowered 0.5 cent. Some refiners reported the zero to 20 pour test stock gradually was coming into its own as the season demanded a winter cold test stock.

Steam refined stock was still reported scarce and prices largely nominal. One large order was reported which was sold on contract and for shipment over the first two weeks of October. Open market sales were few.

Neutral oils remained tight. Prices for the 150 grade were 17.50 to 18 cents, nominal. Only occasional sales were reported.

Other commodities were generally unchanged.

Merit is always recognized...

choicest crude... modern equipment... experience —— laboratory supervision... standardized control... craftsmanship —— quality... uniformity... service ——

PENNSYLVANIA WINTER OILS

Free Flowing at Lowest Winter Temperatures

Viscosities	Pour Tests
50/55 @ 210	Below 0° F.
60/65 @ 210	" 0° F.
75/80 @ 210	" 0° F.
85/90 @ 210	" 0° F.

Also Higher Viscosities If Desired

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536 LAKE SHORE DRIVE CHICAGO, ILL.

Eastern Domestic Markets

Gasoline Prices Generally Unchanged

Staff Special
NEW YORK, Sept. 26

EASTERN gasoline markets developed an uneasy undertone although prices changed only slightly during the week ended Sept. 26. Buyers and sellers alike were cautious about making commitments over October. East coast refiners generally were optimistic.

The market for gasoline having 65 octane number and above at New York harbor remained steady at 5.75 cents in tank cars and 5.50 cents in sizeable barge lots. Sellers of quality material generally resisted efforts of buyers to obtain lower prices. The lower octane gasoline was quoted at 5.50 cents in some instances. Demand for this material was slack.

Marketers generally gave as reason for the prevailing optimism that it was believed a revision of crude prices upwards to above $1.00 a barrel for the high gravities would be announced around Oct. 1.

The Philadelphia gasoline market underwent a slight reaction during the week. Prices were reduced 0.25-cent on the higher octane gasoline and sales of the lower octane gasoline began to appear at 5.50 cents. Sellers in every instance reported that business was slow in coming in.

Jobbers' stocks in most instances were still ample to meet the current demand. Quotations by most sellers were 6 cents for both the higher and lower octane grades and the little business which came into the market was closed at that figure. However, as the week ended, buyers began to show a greater interest in supplies for October. Sellers' activities increased and offerings at 5.75 cents for 65 octane material became more numerous.

Trading in the Baltimore market developed the widest range of prices of any market along the seaboard. Sales in the higher octane gasoline were about evenly divided between 5.75 and 6 cents. However, buying was slow as in other markets. Lower octane gasoline was offered at 5.25 cents in a few instances, and sales were reported at that figure, 5.375 cents and 5.50 cents.

Spot activity in New England markets was far from being brisk. Quotations and sales at Boston were bunched around the 6.25-cent posted prices. Some gasoline was sold at shipping points outside of Boston at 6 cents, but could not be identified with the Boston market. An occasional sale was reported by the Boston trade at under 6.25 cents, but these were the exception rather than the rule.

The third grade gasoline spread a little more widely in New England. Competition at the pumps was rather keen in some sections. However, Rochester, N. Y. continued to be the outstanding competitive hotbed in the northeast. Seven major companies were handling a third product at low prices in this market. The margin of profit was extremely narrow at this point.

Fuel oil prices were steady in New York and Boston. Buyers have not as yet displayed much interest in heating oils. The price for Bunker C oil remained unchanged at $0.70 per barrel in New York and Boston and diesel oil was still quoted at $1.40 per barrel in both markets.

The posted price for grade C Bunker oil at Philadelphia remained at $0.70 per barrel. However, a few sales were reported at $0.65 per barrel.

Gulf Lubes Continue Quiet

HOUSTON, Sept. 26.—Quiet recently prevailing in the Gulf Coastal lubricant markets continues. Prices are unchanged generally, although distress quantities of some grades have been recently offered.

Manufacturers are looking forward, however, to improved winter demand and for the most part are holding their quotations steady.

Gulf Coast Markets

Export Activity at Standstill

Staff Special
NEW YORK, Sept. 26

BULK gasoline prices at the Gulf during the week just ended receded in sympathy with the lower quotations in the Mid-Continent. Export buying was virtually at a standstill. Domestic buyers were slightly more active in their inquiry for anti-knock gasoline.

A cargo of 64-66, 375 end point gasoline was sold by a Texas refiner to an exporter early in the week at approximately 4.25 cents, f.o.b. the Gulf. The seller was able to supply approximately 90,000 barrels for early October lifting. The same supplier was offering a cargo of 60-62, 400 end point gasoline as the week ended. The price asked was slightly under 4.375 cents.

Foreign suppliers reduced their prices a week ago to levels below 4 cents for U. S. Motor gasoline on the basis of f.o.b. the U. S. Gulf. American suppliers were prepared to quote prices above 4 cents and attracted no business.

U. S. Motor gasoline with a 60 to 70 octane rating for coastwise shipment was quoted from 4.50 cents upwards. One sale was reported.

Prices for cased goods remained unchanged. Demand for this class of goods was slack. Heavy oils in cargo lots were quoted higher. The lower gravity gas oil was quoted from 2.25 to 2.50 cents, while the 30 plus gravity grade was 0.25 cent higher in most instances. Bunker C fuel oil in cargo lots remained unchanged at $0.40 to $0.45 per barrel and no sales were reported.

Wax Markets

Prices Steady

NEW YORK, Sept. 26.—Prices for the majority of the grades of wax remained steady in both the New York and New Orleans markets during the week just ended. White scale was quoted a shade higher in the New York market in some instances, while the 133-135 A.m.p. fully refined grade was an 0.125 cent lower. Aside from this mixed trend, the market generally was unchanged.

Inquiry from abroad improved during the week. Several English buyers were in the market for white crude scale for both prompt and future shipment. A Chilean buyer also was inquiring for a small quantity for scale. The quantities specified ranged from 50 to 300 tons.

Domestic business proceeded in a routine fashion and was generally reported fair. Sales of white scale in small quantities were made at 1.85 cents per pound in both markets.

New Stations Building

Note: Material used in this column is taken principally from newspapers. NATIONAL PETROLEUM NEWS assumes no responsibility for its accuracy. Headquarters of companies and addresses of individuals are given wherever possible.

The list as published from week to week cannot be looked upon as indicative of the relative extent to which stations are being built in various parts of the country.

Service Stations

Adams, Wis.—Freeman Van Wie.

Rib Falls, Wis.—Arnold Wild.

Marinette, Wis.—W. R. Petrie, 1596 Marinette Ave.

Bedford, Ky.—Bedford Sweet Shoppe.

Glenview, Ky.—Harlan Tibbs.

Mason City, Ia.—Jay Decker, 14th St. and N. Federal Ave.

Youngstown, O.—Dr. J. S. Zimmerman, South Ave. and Midlothian Blvd.

Ravenna, Ky.—Standard Oil Co. of Kentucky, Louisville, Ky.

Louisville, Ky.—Power Gas Distributing Co., Inc., 1720 South 7th St.

McEwen, Tenn.—R. T. Reeder, Dickson, Tenn.

Milwaukee, Wis.—United Oil Co., 1334 North 35th St.

Weldon, Ill.—Cecil Shineman.

McConnelsville, O. — William Neff, Crooksville.

Conneaut, O.—Conneaut Oil Co.

West Point, Ill.—Mr. E. L. Charpentier.

Marion, Ia.—Alva Williamson.

Spencer, Ia.—Harry Wyeth.

Oakes, N. D.—M. H. Bottelson, Fullerton, N. D.

New York, N. Y.—Arthur J. McCarthy, Tenth Ave. and W. 20th St.

Minneapolis, Minn.—Robert Johnson, 723 E. Lake St.

Pitman, N. J.—Standard Oil Co. of New Jersey, 26 Broadway, New York, N. Y.

Greenwich, Conn.—Kesbick Gasoline Co., Byram Hill and Putnam Ave.

Wakefield, Mass.—Atlantic Refining Co., 260 S. Broad St., Philadelphia, Pa.

Verona, Pa.—Atlantic Refining Co., 260 S. Broad St., Philadelphia, Pa.

Northcumberland, Pa.—O. V. Propst and W. J. Klein.

Dayton, O.—Gulf Refining Co., Frick Bldg. Annex, Pittsburgh, Pa.

Anderson, Ind.—Wade H. Free, Main and 38th St.

West Bend, Wis.—Henry Koch, 11th Ave. and Cherry St.

Columbus, O.—J. J. Daniels, 209 Cypress Ave.

Auburn, Ind.—Beacon Oil Co., Fort Wayne, Ind.

Adrian, Mich.—H. C. Jenkins, Beecher St.

Lowell, Ind.—E. S. Phillips, U. S. Rd. 41.

Miamisburg, O.—Standard Oil Co. of Ohio, Midland Bank Bldg., Cleveland, O.

Osage, Ia. — Continental Oil Co., Ponca City, Okla.

Grundy Center, Ia.—Ben Wickers.

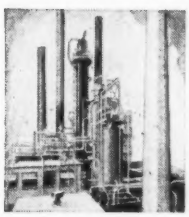
Fremont, Nebr.—Walter Vermillion, Park Ave. and Eighth St.

Anamosa, Ia.—Continental Oil Co., Ponca City, Okla.

Cedar Rapids, Ia.—Albert Deal, 928 19th St. S.E.

This jobber wrote . . .

"*When* it comes to Quality, FREEDOM *is Right On Top*"



FOR nine years he has been buying Freedom Motor Oil and marketing it under his own brand. He (name on request) further says; "It is our frank opinion that a jobber couldn't tie up with a better refinery."

700 other oil jobbers who market Freedom 100% Pennsylvania Motor Oils under their own brand feel the same way. And with the steadily growing demand of motorists for Pennsylvania Oil, profits from their Freedom connection continue to grow. We invite you to become our customer... to get as fine an oil as ever flowed from a still, to market it under your own good name or one of our brands and to reap these extra profits that our jobber-friends everywhere are reporting.

We'll make up motor oils (Sharples Process) to your own specifications. Or if you prefer we'll recommend tested specifications of this 52-year-old organization. Shipments can be made as quickly as you like in tank cars, compartment tank cars or carloads of barrels or drums. Your request for full information and quotations will receive immediate attention.

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FREEDOM, PA.
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150 Viscosity Sharples Bright Stock
100% Pennsylvania Neutrals
600 Steam Refined
650 Steam Refined

Guaranteed 100% PURE PENNSYLVANIA OIL
Permit No. 31

85/90 Viscosity Sharples Bright Stock
600 Flash Steam Refined
630 Flash Steam Refined
Freedom Filtered Kerosene Oil

FREEDOM
100% PENNSYLVANIA OILS
FO-506

Complete Seaboard Market

Export Markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of sales and quotations. Prices shown below do not include inspection tax levied in Florida and South Carolina.)

	Prices Sept. 28	Prices Sept. 21	Prices Sept. 14
U. S. MOTOR GASOLINE, Below 65 Octane Number			
New York Harbor	5.50	5.50 – 5.75	5.75 – 6.00
Philadelphia District	5.50	6.00	6.00
Baltimore District	5.25 – 5.50	5.50 – 5.75	5.75 – 6.00
U. S. MOTOR GASOLINE, 65 Octane Number and Above			
New York harbor	5.75 – 6.00	5.75 – 6.00	6.00
Portland district	6.50	6.50	6.50
Boston district	6.25	6.00 – 6.25	6.25
Providence district	6.25	6.00 – 6.25	6.25
Philadelphia district	5.75 – 6.00	6.00	6.00
Baltimore district	5.75 – 6.00	5.75 – 6.00	6.00
Norfolk district	6.00	6.00	6.00
Charleston district	6.00	6.00	6.00
Savannah district	6.00	6.00	6.00
Jacksonville district	6.00	6.00	6.00
‡DOMESTIC AVIATION GASOLINE			
New York harbor	9.50 –12.00	9.50 –12.00	9.50 –12.00
Philadelphia	9.50 –12.00	9.50 –12.00	9.50 –12.00
Baltimore	11.00 –12.00	11.00 –12.00	11.00 –12.00
Boston	11.50 –13.00	11.50 –13.00	11.50 –13.00

‡Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167°F. and not less than 122°F.; 50% recovery at 221°; 90% at 311°; 96% at 347° end point 374°F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

WATER WHITE KEROSINE			
New York harbor	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
Philadelphia district	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
Baltimore district	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
GAS OIL: 28-34 Gravity			
New York harbor	3.50	3.50	3.50
Boston district	3.75	3.75	3.75
FURNACE OIL: 36-40 Gravity			
New York harbor	4.50	4.50	4.50
Boston district	4.50	4.50	4.50
GRADE C BUNKER OIL (Lighterage 5c per bbl. additional)			
New York harbor	$0.70	$0.70	$0.70
Boston district	$0.70	$0.70	$0.70
DIESEL OIL			
New York harbor	$1.40	$1.40	$1.40

New York Export Market

(Lubricating oils are per gal. in bbls. F.a.s. New York)

	Sept. 28	Sept. 21	Sept. 14
CYLINDER OILS (Pennsylvania Products)			
Bright stock, No. 8 color	36.00 –36.50	36.00 –36.50	35.50 –36.50
Bright stock, No. 6½ color diluted	35.00 –35.50	35.00 –35.50	34.50 –35.50
600 D filtered	28.50 –29.00	*29.00	28.00 –29.00
600 Warren E filtered	25.00 –26.00	25.00 –26.00	25.00 –26.00
600 stm. refd. unfiltered	22.00 –25.00	22.00 –25.00	20 00 –21.00
650 stm. refd. unfiltered	24.00 –26.00	24.00 –25.00	23.00 –23.50
600 flash steam refined	26.00 –28.00	25.00 –26.00	23.00 –24.00
630 flash, steam refined	28.50 –32.00	28.25 –30.00	28.00 –30.00
*Nominal			
RED PARAFFIN OILS (Vis. 100°)			
300 vis. No. 6½ color	15.00 –17.00	17.00 –20.00	17.00 –20.00
250 vis. No. 6 color	15.00 –16.00	16.50 –17.50	16.50 –17.50
200 vis. No. 6 color	13.00 –14.00	14.75 –17.00	14.75 –17.00
PALE PARAFFIN OILS (Vis. 100°)			
230 vis. No. 3¾ color	16.50 –17.00	21.50	21.50
130 vis. No. 3¼ color	15.00 –16.00	18.00 –20.00	18.00 –20.00
100 vis. No. 2¼ color	10.50 –11.50	12.50 –15.00	12.50 –15.00

Wax Market

(Melting points are A.M.P. method. Prices in cents per pound, f.a.s. carload lots.)

NEW YORK	Sept. 28	Sept. 21	Sept. 14
124-126 Yellow crude scale	1.80 – 1.85	1.80 – 1.85	1.80 – 1.85
122-124 White crude scale	1.85 – 2.00	1.875– 1.90	1.875– 1.90
124-126 White crude scale	1.85 – 2.00	1.875– 1.90	1.875– 1.90
123-125 Fully refined	2.875– 3.00	2.875– 3.00	2.875– 3.00
125-127 Fully refined	2.90 – 3.00	2.90 – 3.00	2.90 – 3.00
128-130 Fully refined	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
130-132 Fully refined	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
133-135 Fully refined	4.125– 4.25	4.25 – 4.375	4.25 – 4.375
135-137 Fully refined	4.375– 4.50	4.375– 4.50	4.50 – 4.625
NEW ORLEANS			
124-126 Yellow crude scale	1.80 – 1.85	1.80 – 1.85	1.80 – 1.85
122-124 White crude scale	1.875– 2.00	1.875– 2.00	1.875– 1.90
124-126 White crude scale	1.875– 2.00	1.875– 2.00	1.875– 1.90
123-125 Fully refined	2.875– 3.00	2.875– 3.00	2.875– 3.00
125-127 Fully refined	2.90 – 3.00	2.90 – 3.00	2.90 – 3.00
128-130 Fully refined	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
130-132 Fully refined	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
133-135 Fully refined	4.125– 4.25	4.25	4.25

Gulf Coast Bulk Market

(Prices are f. o. b. Gulf oil terminals representing sellers' opinions covering bulk shipments of 20,000 barrels or more, for export and / or coastwise shipment unless otherwise noted.)

GASOLINE	Prices Sept. 28	Prices Sept. 21	Prices Sept. 14
U. S. Motor	4.25 – 4.50	4.375– 4.625	4.75 – 5.00
60-62, 400 e.p.	4.375– 4.625	4.50 – 4.75	4.875– 5.125
61-63, 390 e.p.	4.50 – 4.75	4.75 – 5.00	*5.00 – 5.25
64-66, 375 e.p.	4.25	4.75 – 5.00	4.75 – 5.00
U. S. Motor, (cases cargoes)	$1.50	$1.50	$1.50
64-66, cases (cargoes)	$1.60	$1.60	$1.60
*Nominal.			
KEROSINE			
44 water white	3.75 – 4.00	3.75 – 4.00	3.75 – 4.00
41-43 prime white	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
Water white, cases (cargoes)	$1.40	$1.40	$1.40
Prime white, cases (cargoes)	$1.30	$1.30	$1.3
GAS & BUNKER OILS			
*26-30 translucent gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
*30 plus translucent gas oil	2.50 – 2.75	2.25 – 2.50	2.25 – 2.50
Grade C bunker oil, for ships' bunkers, per bbl.	$0.55	$0.55	$0.55
Grade C bunker oil, per bbl. in cargoes	$0.40 –$0.45	$0.40 –$0.45	$0.45 –$0.50
*Less than ½ of 1% sulphur.			
MEXICAN CRUDE AND BUNKER OILS (f. o. b. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid, per bbl.	$0.45	$0.45	$0.45
Grade C bunker oil for bunkering, taxes paid, per bbl.	$0.60	$0.60	$0.60
SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test 0 Tanker, f. o. b. Gulf oil terminals.)			
100 vis. No. 2 unfiltered pale	4.375– 5.00	4.375– 5.00	4.375– 5.00
200 vis. No. 3 unfiltered pale	6.00 – 7.00	6.00 – 7.00	6.00 – 7.00
300 vis. No. 3 unfiltered pale	7.625– 8.00	7.625– 8.00	7.625– 8.00
500 vis. No. 3½ unfiltered pale	8.25 – 9.00	8.25 – 9.00	8.25 – 9.00
750 vis. No. 4 unfiltered pale	9.25 –10.00	9.25 –10.00	9.25 –10.00
1200 vis. No. 4 unfiltered pale	12.00 –13.00	12.00 –13.00	12.00 –13.00
200 vis. No. 5-6 red oil	5.25 – 6.00	5.25 – 6.00	5.25 – 6.00
300 vis. No. 5-6 red oil	6.25 – 7.00	6.25 – 7.00	6.25 – 7.00
500 vis. No. 5-6 red oil	7.25 – 8.00	7.25 – 8.00	7.25 – 8.00
750 vis. No. 5-6 red oil	8.25 – 9.00	8.25 – 9.00	8.25 – 9.00
1200 vis. No. 5-6 red oil	13.25 –13.75	13.25 –13.75	13.25 –13.75

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

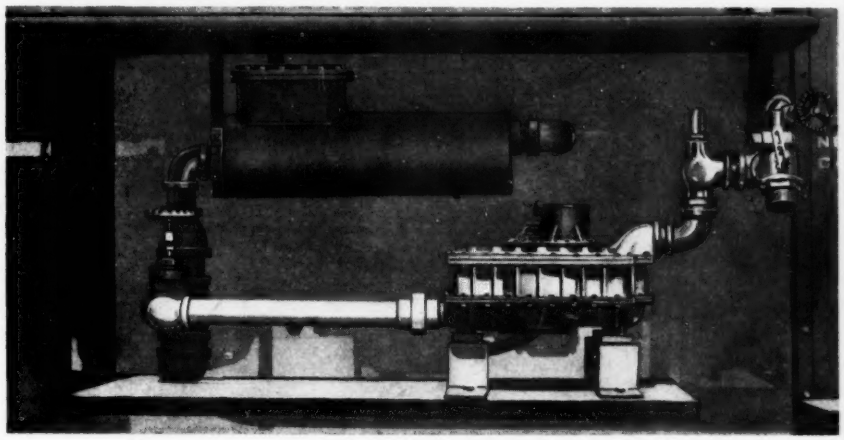
	Sept. 28	Sept. 21	Sept. 14
Gasoline, U. S. Motor, 53-55 Gravity	4.25 – 4.50	4.25 – 5.00	4.25 – 5.00
Gasoline, U. S. Motor-blends and special cuts	4.50 – 4.75	4.50 – 5.25	4.50 – 5.25
Gasoline, 400 e.p. blend	4.75 – 5.25	4.75 – 5.50	4.75 – 5.50
Gas oil, 30-34 per bbl.	$0.85 –$0.90	$0.85 –$0.90	$0.85 –$0.90
Diesel Oil, 27 plus, per bbl.	$0.85 –$0.90	$0.85 –$0.90	$0.85 –$0.90
Bunker oil, 14-18 per bbl.	$0.55 –$0.70	$0.55 –$0.70	$0.55 –$0.70
Fuel oil, 14-18 per bbl.	$0.55 –$0.80	$0.55 –$0.80	$0.55 –$0.80
Kerosine, 38-40 w.w., 125-150 flash, per gal.	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75
Cased Goods			
Gasoline, U. S. Motor	$1.45 –$1.55	$1.45 –$1.55	$1.45 –$1.55
Gasoline, 400 e.p. blend	$1.55 –$1.65	$1.55 –$1.65	$1.55 –$1.65
Kerosine, 38-40 w.w., 125-150 flash	$1.40 –$1.45	$1.40 –$1.45	$1.40 –$1.45

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling: to American ports, cents per barrel.)

	Sept. 28	
	Crude &/or Fuel	Refined Oil &/or Spirits
Calif. to U. K. or Continental ports*	†15	††15
Gulf to U. K. or Continental ports*	9	9
North Atlantic to U. K. or Continental ports*	7/6	7/6
Calif. to North Atlantic ports (not E. of N.Y.)	$0.45-$0.47	$0.45-$0.47
Gulf to North Atlantic ports (not E. of N. Y.)**	14-15	15

*Continental ports in the range between Bordeaux and Hamburg, both inclusive. **Venezuela loading same rate, for Tampico 2c to 3c per bbl. additional. †Last paid 12/6; owners ask 15. ††Last paid 11/6; owners ask 15.



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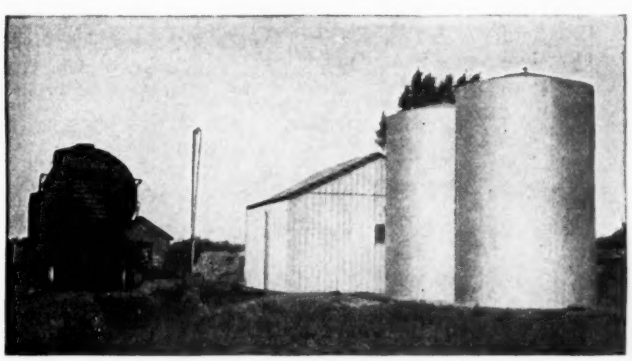

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Tank Wagon, Service Station Markets for Gasoline and Kerosine

(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)

These Prices in Effect September 28, 1931, as Posted by Principal Marketing Companies

Latest Changes in Tank Wagon Prices

Gasoline

S. O. Ohio—S.s. only up 1c thru Summit county, to 17c, including 4c tax, putting it back on statewide schedule, **Sept. 25.**

S. O. Indiana — Red Crown changes:

S.s. only cut 3/10c, Detroit, to 14.5c, including 3c tax, **Sept. 28.**

S.s. only cut ½c, St. Louis, to 12.4c, including 2½c state and city taxes, **Sept. 26.**

S.s. only cut 2c, Davenport, to 12.5c, including 3c tax, **Sept. 21.**

S.s. only cut 1.1c, Des Moines, to 13.4c, including 3c tax, **Sept. 16.**

S.s. only cut 2.1c, St. Joseph, to 11.4c, 3c state and city taxes, **Sept. 21;** t.w. only cut 2.1c, to 11.4c, including taxes, **Sept. 26.**

Stanolind Blue changes:

S.s. only cut 2/10c, Detroit, to 13.1c, including 3c tax, **Sept. 24;** cut 1/10c, to 13c, **Sept. 26.**

T.w. and s.s. cut ½c, St. Louis, both to 10.9c, including 2.5c state and city taxes, **Sept. 26.**

S.s. only cut 2.1c, Davenport, to 10.9c, including 3c tax, **Sept. 21.**

S.s. only cut 1c, Des Moines, to 10.9c, including 3c tax, **Sept. 16.**

S.s. only cut 2c, St. Joseph, to 7.9c, including 3c state and city taxes, **Sept. 21;** t.w. only cut 2.1c, to 7.9c, including taxes, **Sept. 26.**

S. O. Kentucky—T.w. cut 1c, s.s. cut 2c, Miami, both to 19c, including 7c tax, **Sept. 19.**

S. O. Louisiana—T.w. cut ½c, s.s. cut 1.5c, Lake Charles, both to 16.5c, including 6c tax, **Sept. 19.** T.w. and s.s. cut 1c, both to 15.5c, **Sept. 26.**

T.w. and s.s. cut 1c thru territory except New Orleans, Baton Rouge, Lake Charles and Bristol unchanged, **Sept. 23.**

Continental Oil—T.w. and s.s. cut 1c thru territory, **Sept. 22.** Exceptions: Denver t.w. and s.s. cut 2c; Cheyenne t.w. and s.s. cut 1½c; Butte, Twin Falls, and Albuquerque unchanged.

Aviation Gasoline

Continental Oil—T.w. cut 2c, Denver, to 17c; t.w. cut 1½c, Cheyenne, to 18c; t.w. cut 1c, Salt Lake City, to 20.5c; all including 4c tax, **Sept. 22.** T.w. cut 1c, Helena, to 23c; t.w. cut 1c, Boise, to 23.5c, both including 5c tax; **Sept. 22.**

Kerosine

S. O. New Jersey—Kerosine cut 1.3c, Charlotte, to 11c, t.w. **Sept. 23.**

S.O. NEW JERSEY TERRITORY

	T.W.	Tax	Gasoline Total T.W.	S.S.	Oil T.W.
Atlantic City, N. J.	11.7	3	14.7	15.7	11.5
Newark, N. J.	10.7	3	13.7	14.7	10.5
Annapolis, Md.	11.2	4	15.2	16.2	11
Baltimore, Md.	10.4	4	14.4	15.4	8.5
Cumberland, Md.	12.2	4	16.2	17.2	12
Washington, D. C.	10.9	2	12.9	13.9	10.7
Danville, Va.	12	5	17	18	11.8
Norfolk, Va.	10.5	5	15.5	16.5	10
Petersburg, Va.	11.5	5	16.5	17.5	11.3
Richmond, Va.	10.9	5	15.9	16.9	10.7
Roanoke, Va.	12.2	5	17.2	18.2	12
Charleston, W. Va.	11.7	4	15.7	16.7	11.5
Keyser, W. Va.	12.3	4	16.3	17.3	12.1
Parkersburg, W. Va.	10.4	4	14.4	15.4	10.2
Wheeling, W. Va.	11.6	4	15.6	16.6	11.4
Charlotte, N. C.	11.5	6	17.5	17.5	11
Hickory, N. C.	12.8	6	18.8	19.8	12.6
Mt. Airy, N. C.	12.7	6	18.7	19.7	12.5
Raleigh, N. C.	12.4	6	18.4	19.4	12.2
Salisbury, N. C.	12.7	6	18.7	19.7	12.5
Charleston, S. C.	10.5	6	16.5	17.5	10.3
Columbia, S. C.	12.4	6	18.4	19.4	12.2
Spartanburg, S. C.	12.7	6	18.7	19.7	12.5

Discounts: gasoline, 2c per gallon discount off retail t.w. price to dealers thru S. O. New Jersey territory, except Maryland, New Jersey and Washington, D. C. where discount is 3c.

S. O. NEW YORK

	T.W.	Tax	Gasoline Total T.W.	S.S.	Oil T.W.
Greater New York City: Boroughs of Manhattan, Bronx, Queens & Kings	12.3	2	14.3	16.3	9
Borough of Richmond	12.7	2	14.7	16.7	11
Albany, N. Y.	10.6	2	12.6	13.6	10.5
Buffalo, N. Y.	10	2	12	12	10
Rochester, N. Y.	11	2	13	14	10
Syracuse, N. Y.	10	2	12	13	9.5
Boston, Mass.	10.5	3	13.5	14.5	10
Augusta, Me.	12.8	4	16.8	17.8	10.5
Manchester, N. H.	11.4	4	15.4	16.4	10
Burlington, Vt.	13.3	4	17.3	17.3	11
New Haven, Conn.	12.6	2	14.6	15.6	9
Providence, R. I.	10.1	2	12.1	13.1	10

Discounts: on gasoline 2c per gal. off posted t.w. price to dealers, thru territory, except 3c to dealers in New York City.

ATLANTIC REFINING

	T.W.	Tax	Gasoline Total T.W.	S.S.	Oil T.W.
Pittsburgh, Pa.	10	3	13	14	11
Philadelphia, Pa.	10	3	13	14	11
Allentown, Pa.	10	3	13	14	11
Erie, Pa.	10	3	13	14	11

ATLANTIC REFINING — (*Continued*)

	T.W.	Tax	Gasoline Total T.W.	S.S.	Oil T.W.
Scranton, Pa.	10	3	13	14	11
Altoona, Pa.	10	3	13	14	11
Dover, Del.	10	3	13	14	11
Wilmington, Del.	10	3	13	14	11
Boston, Mass.	10.5	3	13.5	14.5	10
Springfield, Mass.	11.5	3	14.5	15.5	10
Worcester, Mass.	11.3	3	14.3	15.3	10
Fall River, Mass.	11.1	3	14.1	15.1	10
Providenc, R. I.	10.1	2	12.1	13.1	10
Hartford, Conn.	12.5	2	14.5	15.5	10
New Haven, Conn.	12.6	2	14.6	15.6	10
Atlantic City, N. J.	11.7	3	14.7	15.7	11.5
Camden, N. J.	10.8	3	13.8	14.8	10.6
Trenton, N. J.	11.2	3	14.2	15.2	11
Annapolis, Md.	11.2	4	15.2	16.2	11
Baltimore, Md.	10.4	4	14.4	15.4	9.5
Hagerstown, Md.	11.9	4	15.9	16.9	11.7
Richmond, Va.	10.9	5	15.9	16.9	10.7
Wilmington, N. C.	10.6	6	16.6	17.6	10.4
Brunswick, Ga.	13	6	19	19	*14
Jacksonville, Fla.	10	7	17	17	12

Discounts: gasoline, the above prices are subject to discounts to dealers and to commercial accounts under contract for one year in accordance with Code of Ethics.

*Georgia kerosine prices include 1c state tax.

S. O. OHIO

Ohio statewide	12	4	16	17	13
Ashtabula, Clark, Defiance, Franklin, Fulton, Greene, Henry, Lucas, Marion, Miami, Preble, Ross, and Williams counties	12	4	16	16	13
Butler, Montgomery and Pickaway counties	11	4	15	15	13

Discounts: on gasoline to dealers and commercial consumers generally thru Ohio 2c per gal. off above t.w. prices except in counties where prices are below statewide schedule, discount is generally 3c.

Discount on kerosine to dealers and commercial consumers is 3c per gal. off t.w. price thru Ohio.

S. O. KENTUCKY

Lexington, Ky.	13	5	18	19	12
Louisville, Ky.	12	5	17	18	10
Paducah, Ky.	13	5	18	18	11
Covington, Ky.	12	5	17	18	11
Jackson, Miss.	12	5	17	17	11.5
Vicksburg, Miss.	12	5	17	17	11.5
Birmingham, Ala.‡‡	12	5	17	17	13
Mobile, Ala.‡	16.5	5	21.5	21.5	10
Montgomery, Ala.*	14	5	19	19	13.5
Macon, Ga.	13	6	19	19	†12
Atlanta, Ga.	13	6	19	19	*†12.5
Augusta, Ga.	13	6	19	20	†14
Savannah, Ga.	11	6	17	17	†12
Jacksonville, Fla.	10	7	17	17	12
Miami, Fla.	12	7	19	19	13
Tampa, Fla.	9	7	16	16	12
Pensacola, Fla.**	13	7	20	21	13

Discounts: on gasoline, 2c per gal. off t.w. price to dealers thru S. O. Kentucky territory.

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosine at Montgomery included.

†Georgia kerosine prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

‡Mobile gasoline prices include 1c city tax, Mobile county tax 2½c.

‡‡Birmingham gasoline prices include 1c city tax.

*†3c discount off t.w. price of oil at Atlanta, meeting competition.

S. O. INDIANA

(Red Crown Gasoline)

Chicago, Ill.	11	3	14	14	9
Decatur, Ill.	11 4	3	14 4	14 4	9
E. St. Louis, Ill.	10.7	3	13 7	13 7	8.2
Joliet, Ill.	11 4	3	14 4	14 4	9
Peoria, Ill.	11 4	3	14 4	14 4	9
Quincy, Ill.	11 2	3	14 2	14 2	8.8
Springfield, Ill.	11 4	3	14 4	14 4	9
Indianapolis, Ind.	11 3	4	15 3	15 3	10.1
Evansville, Ind.	11 1	4	15 1	15 1	9.9
South Bend, Ind.	11 4	4	15 4	15 4	10.2
Detroit, Mich.	11 8	3	14 8	14 5	10.7
Grand Rapids, Mich.	11 7	3	14 7	14 7	10.6
Saginaw, Mich.	11 9	3	14 9	14 9	10.8
Marquette, Mich.	11 9	3	14 9	14 9	10.8

Above prices include these inspection fees on both gasoline and kerosine, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosine; Arkansas, 1/20c on both; Florida, 1/8c on both; Illinois, 3/100c on both; Indiana, 2/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 1/50c to 1/2c on both; Nebraska 3/100c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosine; Wisconsin, 1/25c on both.

Kerosine inspection fees only, per gallon: Iowa 7/100c; Michigan, 1/5c to 4/5c per gal.

Tank Wagon, Service Station Markets for Gasoline and Kerosine

These Prices in Effect September 28, 1931, as Posted by Principal Marketing Companies

S. O. INDIANA—(*Continued*)

(Red Crown Gasoline)

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Green Bay, Wisc.	11.6	4	15.6	15 6	9.4
Madison, Wisc.	11.3	4	15.3	15.3	9.1
Milwaukee, Wisc.	11.1	4	15.1	15 1	8.9
La Crosse, Wisc.	12.2	4	16.2	16 2	10
Minneapolis, Minn.	12 2	3	15 2	15 2	9 9
Duluth, Minn.	12.5	3	15.5	15 5	9 9
Mankato, Minn.	12 1	3	15.1	15 1	9.7
Des Moines, Ia.	11 5	3	14 5	13 4	8
Davenport, Ia.	11 5	3	14 5	12.5	9.3
Sioux City, Ia.	11 1	3	14.1	14 1	8.9
Mason City, Ia.	11 5	3	14 5	14 5	9.3
St. Louis, Mo.	*10.9	2	12.9	12.4	8.3
Kansas City, Mo.	†11 9	2	13 9	13 9	7 6
St. Joseph, Mo.	†9 4	2	11 4	11 4	7 5
Fargo, N. D.	13 9	3	16.9	16 9	11 9
Grand Forks, N. D.	14 2	3	17.2	17 2	12 2
Minot, N D.	13.9	3	16.9	16.9	11 9
Pierre, S D.	12	4	16	16	10.4
Huron, S. D.	12.3	4	16.3	16.3	10.7
Wichita, Kans.	9.8	3	12.8	12.8	7.8
Bartlesville, Okla	8	5	13	16	7

*Includes city tax of ½c.
†Includes city tax of 1c.

Stanolind Blue Gasoline

Stanolind Blue prices are 1.5c per gal. under Red Crown, except at following points:

Detroit, Mich.	10.3	3	13.3	13	10.7
Evansville, Ind.	9.6	4	13.6	9	9.9
St. Louis, Mo.	*8 9	2	10.9	10 9	8 3
St. Joseph, Mo.	†5 9	2	7.9	7 9	7 5
Davenport, Ia.	10	3	13	10 9	9.3
Des Moines, Ia.	10	3	13	10.9	8
Sioux City, Ia.	9.6	3	12.6	10.9	8.9

†Includes city tax of 1c.
*Includes city tax of ½c.

Discounts: O.D.A., effective May 11, 1931, on gasoline: **To re-sellers,** thru territory, except Chicago:

Under 75,000 gals., off service station price: Ethyl, 3c, Red Crown, 2.5c, and Stanolind Blue, 1.5c per gal.; 75,000 gals. and over, off tank wagon price: Ethyl, 4c, Red Crown, 3.5c, and Stanolind Blue, 2c.

In Chicago, in any quantity, discounts are 4c per gal. on Ethyl gasoline, 3.5c on regular motor fuel grades and 2c on "third" grades, by principal marketing companies, discounts being off service station prices in quantities up to 75,000 gallons, and off t.w. price in quantities of 75,000 gallons and over.

To consumers, thru territory, except Chicago:

1,000 to 75,000 gals., off tank wagon price: Ethyl, 3c; Red Crown, 2.5c; and Stanolind Blue, 1.5c; 75,000 gals. and over, off tank wagon price, Ethyl, 4c; Red Crown, 3.5c; and Stanolind Blue, 2c.

In Chicago, in quantities over 1,000 gallons: Ethyl gasoline, 4c; regular grades 3.5c; "third" grades 2c, all discounts being off tank wagon price.

S. O. NEBRASKA

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Omaha, Neb.	11.25	4	15.25	16.25	9.25
McCook, Neb.	12	4	16	17 75	10 75
Norfolk, Neb.	11 75	4	15.75	16.75	9.75
North Platte, Neb	11 75	4	15.75	17.75	10 5
Scottsbluff, Neb	12	4	16	16	10.25

Discounts: on gasoline, to dealers, off normal service station prices Red Crown Ethyl 3c; Red Crown 2.5c per gal.; Nebraska Blue, 1c.

S. O. LOUISIANA

	Gasoline Posted Retail T.W.	Tax	Total Posted Retail T.W.	Posted Retail S.S.	Oil T.W.
Little Rock, Ark.	10.5	6	16.5	17.5	11
Alexandria, La.	10	*6	16	17	†12
Baton Rouge, La.	10	5	15	16	†12
New Orleans, La.	8.5	*6	14.5	14.5	*12
Lake Charles, La.	9.5	*6	15.5	15.5	†12
Shreveport, La.	10.5	5	15.5	16.5	†12
Lafayette, La.	10	*6	16	17	†12
Bristol, Tenn.	12	6	18	19	14
Chattanooga, Tenn.	12	6	18	19	12
Knoxville, Tenn.	12.5	6	18.5	19.5	13.5
Nashville, Tenn.	11.5	6	17.5	18.5	12.5
Memphis, Tenn.	10.5	6	16.5	17.5	11

Discounts: on gasoline and kerosine, in S. O. La. territory: To dealers and commercial consumers from the tankwagon, 2c per gal. off posted retail tank wagon price.

*Lake Charles, Alexandria, New Orleans and Lafayette gasoline tax includes 5c state tax and 1c parish tax. New Orleans kerosine price includes 1c parish tax in addition to 1c state tax.

†Kerosine price in Louisiana includes 1c state tax.

MAGNOLIA PETROLEUM

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Muskogee, Okla.	7	5	12	14	8
Oklahoma City.	9	5	14	16	7
Tulsa, Okla	8	5	13	15	8
Fort Smith, Ark.	11.5	5	16.5	17.5	11
Little Rock, Ark.	11.5	6	17.5	18.5	11
Texarkana, Ark.*	8	*4	12	14	8
Dallas, Tex	9	4	13	14	8
Fort Worth, Tex.	9	4	13	14	8
Houston, Tex.	8	4	12	14	11
San Antonio, Tex.	8	4	12	14	10
El Paso, Tex.	10	4	14	16	12

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 6c Arkansas tax applies.

†Fort Smith gasoline prices include Oklanoma tax of 5c; outside Fort Smith, Arkansas tax of 6c applies.

CONTINENTAL OIL

	Tax	Tank Truck (Resale)	*Retail Prices	Oil
Denver, Colo.	10	4	14	17	12.5
Pueblo, Colo.	11	4	15	18	12
Grand Junc., Colo.	13	4	17	20	14.5
Casper, Wyo	10	4	14	17	10
Cheyenne, Wyo.	11	4	15	18	11.5
Butte, Mont.	12	5	17	20	16
Helena, Mont.	15	5	20	23	16
Salt Lake City, Utah	13.5	4	17.5	20.5	16
Boise, Ida.	15.5	5	20.5	23.5	18
Twin Falls, Ida.	†15	5	†20	20	18
Albuquerque, N. M.	12	*6	18	21	14

*Tax includes 5c state tax and 1c city tax.
†3c per gal. off t.w. price at Twin Falls to dealers.

S. O. CALIFORNIA

	Tax	Tank Truck (Resale)	*Retail Prices	Oil
San Francisco, Cal.	3	13.5	16.5	15.5
Los Angeles, Cal.	3	13	16	15.5
Fresno, Cal.	3	13.5	16.5	17
Phoenix, Ariz.	5	14 5	17 5	20
Reno, Nev.	4	17.5	20.5	19
Portland, Ore.	4	15	18	16 5
Seattle, Wash.	5	16	19	20.5
Spokane, Wash.	5	19.5	22.5	20.5
Tacoma, Wash.	5	16	19	20.5

Discounts: none on gasoline. Tank truck prices are those to resale trade: wholesale prices are generally 6c above tank truck prices, except at Phoenix, 1c.

*Retail prices are those of Standard Stations, Inc., marketing subsidiary of the Standard Oil Co. of California.

CANADA

Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
ONTARIO					
Toronto	17.5	5	22.5	26	18.5
Ottawa	18.5	5	23.5	27	19.5
North Bay	21.5	5	26.5	32	22.5
Fort William	19.5	5	24 5	28	17
Border Cities, including Windsor	17.5	5	22.5	26	16.5
MANITOBA					
Winnipeg	19.5	5	24.5	28	13.5
SASKATCHEWAN					
Regina	23.5	5	28.5	32.5	17
ALBERTA					
Edmonton	24.5	5	29.5	33	18
Calgary	21	5	26	29.5	14.5
BRITISH COLUMBIA					
Vancouver	21.5	5	26.5	27.5	22
QUEBEC					
Montreal	18.5	5	23.5	27	19.5
Quebec City	20.5	5	25.5	29	21.5
Three Rivers	20.5	5	25.5	29	21.5
NEW BRUNSWICK					
St. John	20	5	25	29	22
Moncton	20	5	25	29	22
NOVA SCOTIA					
Halifax	20	5	25	29	22
PRINCE EDWARD ISLAND					
Charlottetown	20	6	26	30	22

NAPHTHA PRICES

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	10.7	12.7	14.2
Detroit	13.4	14.9	15.7
Kansas City	†11.9	†13 4	†14.2
Milwaukee	12.4	*15.9	*16.7
Minneapolis	**16.7	**18.2	**19
St Louis	11.6	13.1	13.9
New York		14	20
Boston		17	20

*Includes 2c state tax. †Includes 1c city tax.
**Includes 3c state tax.

Petroleum Spirits (Solvent)

Tank Cars (F.o.b. refinery or seaboard terminal)	
New York Harbor	9.00
Philadelphia district	9.00
Providence	9.50
Tank Wagon or Steel Barrels	
New York City	14
Syracuse	17
Rochester	14
Buffalo	‡14
Providence	17
Boston	17
Bridgeport	15
Newark	16
Philadelphia	13
Lancaster	17
Altoona	17
Baltimore	16

Note: 2c off above t.w. prices to large buyers in some instances.

‡Buffalo price is net.

Aviation Gasoline Prices

Following are tank wagon prices of aviation gasoline in principal marketing territories showing state and municipal taxes:

S. O. NEW JERSEY

Prices in Effect Sept. 28, 1931

	T.W.	Tax	Total T.W.
Newark, N. J.	14.9	*	14.9
Baltimore, Md.	15.2	4	19.2
Washington, D. C.	15	2	17

*New Jersey road tax of 3c does not apply on aviation gasoline, exemption being claimed at time of purchase.

All above prices are on Stanavo Aviation Gasoline

COLONIAL BEACON OIL CO.

New York City	17.5	2	19.5
Boston, Mass.	19	3	22

S. O. PENNSYLVANIA

Philadelphia, Pa.	15	3	18
Pittsburgh, Pa.	15	3	18
Altoona, Pa.	15	3	18

S. O. OHIO

Thru Ohio	15	4	19

Discounts given by S. O Ohio: For delivery to airports only; 2,000 gals. or over per month, 1c per gal.; 6,000 gals. or over per month, 2c; 12,000 gals. and over per month, 3c; 24,000 gals. and over per Month, 4c.

S. O. INDIANA

Chicago	14	3	17
Indianapolis, Ind.	14.3	4	18.3
Detroit, Mich.	14.8	3	17.8
Milwaukee, Wis.	14.1	2	16.1
Minneapolis, Minn.	15.2	3	18.2
St. Louis, Mo.	13.4	2.5	15.9
Kansas City, Mo.	13.9	3	16.9
Fargo, N. D.	16.9	3	19.9
Huron, S. D.	15.3	4	19.3
Wichita, Kan.	12.8	3	15.8

In S O. Indiana territory, buyer pays state and city taxes on aviation gasoline, and if he can get a refund from the state, he does so. Kansas City tax of 3c includes 1c city tax; St. Louis tax of 2.5c includes ½c city tax.

(*Continued on Page 92*)

A LEADER All-Steel Drain Rack

IN buying a Leader All-Steel Drain Rack, you are purchasing more than fabricated steel—you are buying years of satisfaction and service.

Any passenger car or light truck can mount this Rack. We make it in two sizes. One is 24" high and the other is 30" high. Shipments are prompt and full specifications will be sent upon request.

LEADER IRON WORKS, INC.

2112 NO. JASPER STREET DECATUR, ILLINOIS

PETROLEUM PRODUCTS
From All Fields

Carloads, Tank Cars, and Cargoes
For Domestic or Export

GASOLINE KEROSENE NAPHTHA
CRUDE OIL FUEL OIL GAS OIL FURNACE OIL
CYLINDER STOCKS
UNFILTERED AND FILTERED
BRIGHT STOCKS
COLD SETTLED AND CENTRIFUGED
PALE—RED OILS
WAX—PETROLATUM
TECHNICAL WHITE OILS
WHITE MINERAL OILS

For 35 years of reliability, service and integrity—this Company enjoys an International Reputation

JAMES B. BERRY SONS' CO., INC.
General Office—Oil City, Pa.

District Offices at
New York, Philadelphia, Boston, Chicago
London—Hamburg

Cable Address—JASBER Oil City *All Codes*

On The Lazy Bench

Them's Our Sentiments

"We are now passing the most famous brewery in Berlin," explained the guide.

"We are not," replied the American tourist, as he hopped off the bus.

—The Gas Line
West Penn Oil Co.

* * *

The minister called at the Jones home one Sunday afternoon, and little Willie answered the bell. "Pa ain't home," he announced. "He went to the golf club."

The minister's brow darkened, and Willie hastened to explain.

"Oh, he ain't gonna play any golf. Not on Sunday. He just went over for a few highballs and a little stud poker."

—Skelly News
Skelly Oil Co.

* * *

One thing can be said about some present day likker. Sometimes one drink will last a life time.

—Gusherville News
Vickers Petroleum Co.

* * *

Unfair

Mother: "How is it you have not done your school work?"

Little Daughter: "I have decided not to do any more. It's not fair. We children do the work and the teachers get paid for it."

* * *

A Quorum

Professor: "I am going to speak on liars today. How many of you have read the twenty-fifth chapter of the text?"

Nearly every student raised his hand.

Professor: "Good! You are the group to whom I wish to speak. There is no twenty-fifth chapter!"

—Skelly News
Skelly Oil Co.

* * *

As the world grows more civilized, we keep right on improving padlocks.

* * *

"What would you surgeons do," asked a friend of Dr. Cutt, "if everybody learned how to keep well?"

"I'm afraid," replied Dr. Cutt, "that we'd have to suspend operations."

—The Gas Line
West Penn Oil Co.

* * *

Omitted

The pastor was examining one of the younger classes and asked the question, "What are the sins of omission?"

After a little silence, one young lady offered: "Please, sir, they are the sins we ought to have committed and haven't."

—The Gas Line
West Penn Oil Co.

Crude Oil Prices (in Effect Sept. 28, 1931)

Crude prices for the whole year in OIL PRICE HANDBOOK published annually

EASTERN FIELDS

Posted by Joseph Seep Purchasing Agency

(All Penna. Grade Crude except Corning, Effective Sept. 12, 1931)

Bradford—Alleghany district (Penna. and New York) (posted by Tide Water Pipe Co., Ltd.).....$2.25
Penna. Grade Oil in National Transit Lines..*1.95
Penna. Grade Oil in Southwest Penna. Pipe Lines..... 1.80
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)..... 1.70
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.)..... 1.60
Corning Grade in Buckeye Pipe Lines (Ohio).. 0.80
(Effective Sept. 16, 1931)
Ragland in Cumberland Pipe Lines (Kentucky) (Effective Jan. 9, 1929).....$0.60

Posted by Other Companies

Ashland Refining Co.:
Somerset in Cumberland lines (Kentucky)
(Effective Sept. 26, 1931) $0.65

Stoll Oil Refining Co.:
Oil City in Stoll lines (Kentucky) (Effective Sept. 16, 1931).....$0.60

*Oil run prior to July 1, 1929 is 5c less per bbl.

MICHIGAN

Postings discontinued in Muskegon field.

(Posted by Pure Oil Co.)

Midland, Midland County (Aug. 23, 1931)..$0.73

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective Aug. 24, 1931

Wooster	$1.00	Princeton	$0.80
Lima	0.90	Illinois	0.80
Indiana	0.50	West Kentucky	0.75

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Effective Aug. 24, 1931

Petrolia, Ont.....$1.80
Oil Springs, Ont.....$1.87
(Effective Aug. 25, 1931)
Turner Valley, Alta.:
45-49.9.....$2.08 50 and above...$2.65

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of *Stanolind Crude Oil Purchasing Co.
(In Oklahoma, Kansas, North and North Central Texas)

Effective Aug. 22, 1931

Below 29	$0.46	35-35.9	$0.60
29-29.9	0.48	36-36.9	0.62
30-30.9	0.50	37-37.9	0.64
31-31.9	0.52	38-38.9	0.66
32-32.9	0.54	39-39.9	0.68
33-33.9	0.56	40 and above...	0.70
34-34.9	0.58		

*Prairie Oil & Gas withdrew postings in Oklahoma, Kansas and Texas, Jan. 1, 1931.

Effective Aug. 22, 1931, above prices were met by these companies:

Humble Oil & Refining Co. in Ranger, North Texas, Moran, Mexia, Powell, Boggy Creek, Richland, Wortham and Currie.

The Texas Co., in Oklahoma, North Texas, North Central and Central Texas and North Louisiana.

Carter Oil Co. in Oklahoma and Kansas.

Continental Oil Co., in Oklahoma, Kansas and North Texas.

East Texas

Discontinued by Humble, June 3.

Magnolia Petroleum Co.
(In Oklahoma, Kansas and Texas)

Effective Aug. 22, 1931

Oklahoma:

Cushing, Morrison, Oklahoma City, Seminole, Wewoka and Yale.....$0.68
Cement, Duncan and Walters..... 0.60
Healdton..... 0.37
Hewitt and Graham..... 0.52

Kansas:

Withdrawn July 22, 1931

Texas:

North and North Central:
Archer, Burkburnett, Comanche, Electra, Henrietta, Olden and Stephens.....$0.68
East Texas.....$0.68
East Central Texas:
Thrall (Effective July 24, 1931).....$0.40
Central Texas:
Mexia, Wortham, Corsicana Light, Panola county and Lytton Springs.....$0.64
Corsicana heavy.....$0.34
Panhandle:
Gray county.....$0.58
Carson-Hutchinson counties.....$0.51
West Texas:
Crane, Upton, Howard, Glasscock, and Mitchell counties.....$0.35
South Texas:
Mirando.....$0.60
Darst Creek..... 0.52
Luling..... 0.34

Louisiana-Arkansas

Effective Aug. 24, 1931

North Louisiana:

Bull Bayou.....$0.68
Cotton Valley..... 0.46
Haynesville..... 0.50
Pine Island..... 0.58

Arkansas:

El Dorado and Rainbow.....$0.48
El Dorado, East Field (Calion).....$0.45
Smackover.....$0.45

PANHANDLE TEXAS

Humble Oil & Refining Co.

Effective Aug. 22, 1931

Hutchinson-Carson Counties		Gray County	
Below 35	$0.41		$0.46
35-35.9	0.43		0.48
36-36.9	0.45		0.50
37-37.9	0.47		0.52
38-38.9	0.49		0.54
39-39.9	0.51		0.56
40 and above....	0.53		0.58

Above prices met by The Texas Co. on Aug 22 in Hutchinson, Carson and Gray counties.

WEST TEXAS and NEW MEXICO

Humble Oil & Refining Co.

Effective Aug. 22, 1931

Pecos, Winkler, Crane, Upton, Crockett, Ector, Howard and Glasscock Counties, Tex., and Lea county, N. Mex.....$0.35

Aug. 22, 1931, The Texas Co. same prices in Crane, Upton, Winkler and Lea counties as Humble.

SOUTH and SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)

Effective Aug. 22, 1931

Mirando.....$0.60
Salt Flat..... 0.52
Darst Creek..... 0.52
Pettus, Bee County..... 0.70

(Posted by The Texas Co.)

Effective Aug. 22, 1931

Markham.....$0.52

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado Crichton, De Soto, Sabine, Sarepta and Carterville.

Effective Aug. 24, 1931

Below 29	$0.46	35-35.9	$0.60
29-29.9	0.48	36-36.9	0.62
30-30.9	0.50	37-37.9	0.64
31-31.9	0.52	38-38.9	0.66
32-32.9	0.54	39-39.9	0.68
33-33.9	0.56	40 and above....	0.70
34-34.9	0.58		

Smackover.....$0.45
Urbana..... Discontinued Aug. 24
*Urania, La. (Effective Aug. 24, 1931)..... 0.45
†Stephens, Ark.:
Below 29.....$0.41
29 and above..... 0.44

*Urania posted by Louisiana Oil Refining Corp.

†Stephens price effective Aug. 24, 1931 posted by Atlantic Oil Producing Co. and Louisiana Oil Refg. Corp.

*GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective Aug. 22, 1931

Below 25	$0.55	30-30.9	$0.61
25-25.9	0.56	31-31.9	0.62
26-26.9	0.57	32-32.9	0.63
27-27.9	0.58	33-33.9	0.64
28-28.9	0.59	34-34.9	0.65
29-29.9	0.60	35 and above..	0.66

Refugio heavy.....$0.60

*Includes these fields: Barbers Hill, Goose Creek, Hull, Humble, Liberty, Moss Bluff, Mykawa, Orange, Pierce Junction, Raccoon Bend, Refugio light, Sour Lake, Spindletop, Sugarland and West Columbia.

The Texas Co. met above Gulf Coastal schedule Aug. 22, except that it posts these higher grades: 36-36.9, $0.67, 37-37.9, $0.68, 38-38.9, $0.69, 39-39.9, $0.70, 40 and above, $0.71.

Crude Price Changes

ASHLAND, Ky.—Sept. 26 Ashland Refining Co. reduced Somerset, Ky. crude in Cumberland lines 15 cents, making new price $0.65 per barrel. Last previous change was a 25 cent advance Aug. 22.

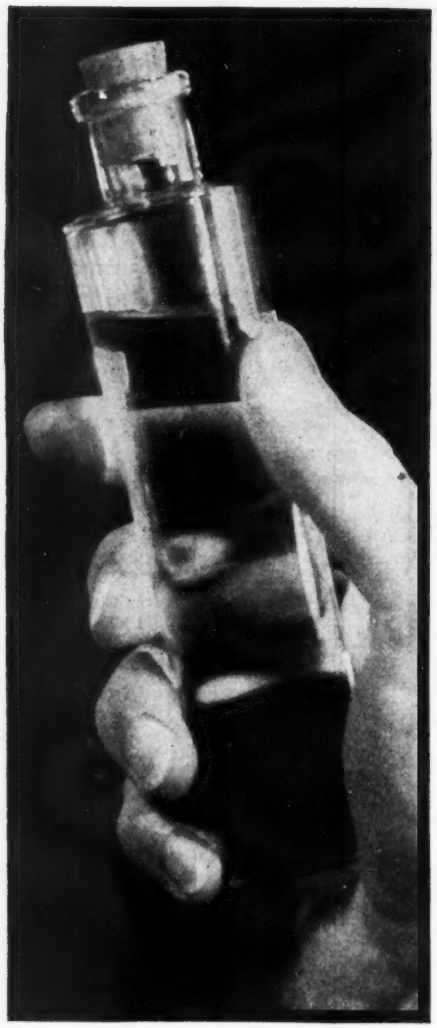
Chicago Oil Men Golf

CHICAGO—John Ploebst, Linde Air Products Co., was low score at the Chicago Oil Men's Club golf outing at the Maywood Country Club Sept. 17. Other prize winners were Henry Plane, Johnson Oil Refining Co.; Fred Nation, Shell Petroleum Corp.; H. G. Donavan, Industrial Petroleum Corp.; R. M. McNeilly, Refiners Petroleum Co.; Charles Hirth, Hughes Oil Co. and Owen Hulse, Seneca Petroleum Co.

Oil Service "Friendly Chats"

WARREN, Pa.—"Just Friendly Chats" is the name under which Oil Service, Inc., oil marketer here, B. S. Knabenshue president, issues its house publication.

In it appears a miscellany of discussions to fit the company's own description of it—a little package of fact, fun and inspiration. The September issue had a center spread written by Mr. Knabenshue discussing faith and friendship in the oil business.



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We'll admit that if your oil is good enough, it will sell eventually. But we also know that it will sell quicker if you will present your samples in Owens-Illinois sample oil bottles. These little "show windows" for your oil are hand-blown of the clearest perfume bottle glass. Finish, neck, shoulders, side walls and bottoms all contribute to making perfect containers for your purpose. Owens-Illinois Glass Co., Toledo, O.

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BOTTLES

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GASOLINE—LUBRICATING OILS
NAPHTHA—GAS—OILS
WAX—PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

Gulf Refining Company

General Sales Offices:
PITTSBURGH, PA.

District Sales Offices: New York, Boston, Philadelphia
Louisville, Atlanta, Houston, New Orleans

OIL PRICE HANDBOOKS

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National Petroleum News. 735 Penton Bldg., Cleveland Ohio

Crude Oil Prices (in Effect Sept. 28, 1931)

(Prices are per barrel at the well)

(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)

ROCKY MOUNTAIN FIELDS
(Posted by Midwest Refining Co.)

(Effective Aug. 22, 1931)

Salt Creek, below 29°	$0.46
" " 29-29.9	0.48
" " 30-30.9	0.50
" " 31-31.9	0.52
" " 32-32.9	0.54
" " 33-33.9	0.56
" " 34-34.9	0.58
Salt Creek 35-35.9	0.60
" " 36-36.9	0.62
" " 37-37.9	0.64
" " 38-38.9	0.66
" " 39 39.9	0.68
" " 40 and above	0.70

(Posted by Ohio Oil Co.)

Effective Aug. 24, 1931

Elk Basin, Wyo.	$0.90
Grass Creek Light	0.90
Big Muddy	0.68
Lance Creek	1.05
Rock Creek	0.70
Sunburst, Mont.	0.90

(Posted by *Midwest Refining Co.)

Effective Aug. 24, 1931

Cat Creek, Mont.	$0.90
Hogback, N. Mex.	0.80
Hobbs, N. Mex.	0.35

*Midwest also posts Elk Basin and Grass Creek light crudes.

CALIFORNIA CRUDE
††Standard Oil Co. of California

Effective June 19, 1931

	Signal Hill *Seal Beach *Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canon	Elwood Terrace	Torrance	Richfield	†Whittier †La Habra Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway Sunset Elk Hills Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge	**Athens **Rosecrans **Dominguez	**Santa Paula	**Orcutt
Gravity																			
14–19.9	$0.65	$0.65	$0.65	$0.65	$0.65	....	$0.65	$0.65	$0.65	$0.65	....	$0.55	$0.55	$0.55	$0.55	$0.55	....	$0.65	$0.55
20–20.9	.65	.65	.66	.65	.66	....	.65	.65	.65	.65	....	....	.55	.55	.55	.55	....	.65	.56
21–21.9	.65	.65	.68	.66	.67	....	.65	.66	.65	.65	....	....	.55	.57	.55	.55	....	.65	.57
22–22.9	.65	.66	.70	.67	.68	F.o.b. Ship	.66	.68	.65	.65	....	....	.56	.59	.55	.55	....	.65	.59
23–23.9	.67	.68	.72	.68	.70		.67	.70	.65	.66	....	....	.58	.60	.55	.55	....	.65	.61
24–24.9	.69	.70	.74	.69	.72		.68	.72	.65	.67	$0.65	....	.61	.62	.55	.55	$0.69	.66	.63
25–25.9	.71	.72	.76	.70	.74		.70	.74	.65	.69	.65	....	.64	.64	.57	.55	.71	.68	.65
26–26.9	.73	.74	....		.76	....	....	....	....	.71	.65	....	.66	.66	....	....	.73	.70	.67
27–27.9	.75	.76	....		.78	....	....	....	....	.73	.68	....	.68	.67	....	....	.75	.72	....
28–28.9	.77	....	....		.80	....	....	....	....	.75	.71	....	.71	.69	....	....	.77	.74	....
29–29.9	.79	....	....	Subject to field gathering charge of 5c per barrel.	....	....	....	....	....	.77	.73	....	.74	.71	....	....	.79	.76	....
30–30.9	.81	....	....		....	....	....	....	....	.79	.75	....	.76	.72	....	....	.81	.78	....
31–31.9	....	....	....		....	....	....	....	....	....	.78	....	....	....	....	....	.83	....	....
32–32.9	....	....	....		....	....	....	....	....	....	.80	....	....	....	....	....	.85	....	....
33–33.9	....	....	....		....	$0.79	....	....	....	....	.83	....	....	....	....	....	.87	....	....
34–34.9	....	....	....		....	.81	....	....	....	....	.85	....	....	....	....	....	.89	....	....
35–35.9	....	....	....		....	.84	....	....	....	....	.87	....	....	....	....	....	....	....	....
36–36.9	....	....	....		....	.87	....	....	....	....	....	....	....	....	....	....	....	....	....

*Seal Beach and Alamitos Heights prices end with $0.75 for crude 27 and above.
†Whittier and La Habra crude ends with 22-22.9 gravity.
**Posted by Union Oil Co. of California, effective June 20, 1931.
††Postings on Kettleman Hills, Ventura Avenue, Athens-Rosecrans and Dominguez discontinued by Standard. Kettleman Hills, 30 and above, posted at 66 cents by Associated Oil Co. and General Petroleum Co., June 19, 1931.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	Sept. 28	Sept. 21
Soda Ash Light 58% bags, cwt.	$1.15-1.38	$1.15-1.38
Silicate of Soda 60 deg. drums, cwt.	$1.75-1.90	$1.75-1.90
Silicate of Soda 40 deg. tank cars, cwt.	$0.70	$0.70
Silicate of Soda 40 deg. drums, cwt.	$1.00	$1.00
Sal Soda wks.	$0.90-1.20	$0.90-1.20
Caustic Soda 76% solid, cwt.	$2.25-2.50	$2.25-2.50
Sulfuric Acid 60 deg. tank cars, f. o. b. shipping point per ton	$11 00-12.50	$11.00-12.50
Sulfur, flowers of, cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks, lb.	1.75	1.75

Compounder's Supplies

Vegetable Oils

Linseed carloads, spot, lb.	7.40	7.60
Tanks, spot	6.80	7.00
Soya Bean, Tank, coast, lb.	5.50	5.50

Oleic Acid

Distilled, tanks, lb.	7.00	7.00
Distilled, bbls, lb.	7.875	7.875
Saponified, tanks, lb.	7.75	7.75
Saponified, bbls, lb.	7.625	7.625

Lard Oils

Prime Winter Strained, lb.	11.75	11.75
Extra Winter Strained, lb.	7.75	7.50
Extra, lb.	7 50	7.25
Extra No. 1, lb.	6.75	6.875
No. 1, lb.	6.50	6 625
No. 2, lb.	6.25	6 00
Tallow oil, lb.	7.00	7.00

Neatsfoot Oil

Pure, bbls, lb.	9.50	9.50
Extra, bbls, lb.	7.00	7.00
No. 1 bbls, lb.	6.75	6.75
Cold Pressed, lb.	13.25	13.25

Fish Oils

Menhaden Oil Light Pressed, gal.	33-34	33-34
Light Pressed, tank cars, N. Y., gal.	27-28	27-28
Yellow bleached, gal.	36-37	41
Whale, extra winter bleached, gal.	68	68

Naval Stores

Steam distilled turpentine, N. Y., gal.	38	38
Steam, distilled turpentine, Savannah, gal.	35	35
Gum turpentine, N. Y., gal.	50	50
Gum turpentine, f.o.b. cars Savannah, gal.	44	44
Wood Rosin, N. Y., bbl.	$4.65	$4.65
Wood Rosin F, Savn'h, bbl.	$4.55	$4.55
Gum Rosin B, N. Y., bbl.	$3.75	$3.90
Gum Rosin B, f.o.b. cars Savannah, bbl.	$3.00	$3.15
Rosin oil, pure, gal.	47	50
Rosin, oil, compounded, gal.	41	44

Pine Tar

Kiln burnt, bbl.	$10.00-11.00	$10.00-11.00
Retort, bbl.	$11.00-12.00	$11.00-12.00

Alcohol

Denatured Formula 5, in tanks, per gal.	24	24

Gasoline Demand Gains 3.2% in July

NEW YORK, Sept. 26

TAXED gasoline demand, as indicated by reports made by wholesalers and dealers under gasoline tax laws, totaled 1,403,587,000 gallons in July, in 46 states and in the District of Columbia, a gain of 43,405,000 gallons, or 3.2 per cent over July, 1930, according to the American Petroleum Institute.

Daily average consumption in July was 45,277,000 gallons, compared with daily average of 43,712,000 gallons in June, an increase in July of 3.6 per cent.

Gasoline consumption in the seven months ended July, 1931 totaled 7,873,981,000 gallons, compared with 7,609,106,000 gallons for the corresponding period of 1930, a gain of 264,875,000 gallons, or 3.5 per cent.

Twelve states in July, 1931 reported decreases in consumption over July, 1930 ranging from 0.15 per cent to 17.74 per cent, while increases in 34 states ranged from 1.2 per cent to 26.7 per cent.

Detailed figures are given in the accompanying table.

Signing Kansas Tax Cut Petition Costs 25c

TULSA, Sept. 24.—Kansas motorsists are being given the privilege—for 25 cents—of signing petitions now being circulated in that state, asking for reductions in the Kansas automobile and truck licenses. The proposed reductions would be in the form of a flat rate of $3 for automobiles and $5 for trucks.

Information regarding the circulation of the petitions is contained in a recent bulletin of the Kansas Oil Men's Association, of which John A. Motter, Wichita, is secretary.

According to the bulletin, signers of the petition are requested to pay a fee of 25 cents, which will be distributed as follows:

The petition circulator gets 9 cents, the county supervisor gets 3 cents, a trust fund for legislative purposes obtain 3.50 cents, and "operative and administrative" expense gets 9.50 cents.

The petitions, according to the K. O. M. A. bulletin, are being circulated in every county in the state.

Gasoline Consumption by States, July 1931

(Figures in Thousands of Gallons)

	Month of June, 1931 Gallons	Month of July, 1931 Gallons	July, 1930 Gallons	% Change 1931 over 1930	7 Months Ending With July, 1931 Gallons	7 Months Ending With July, 1930 Gallons	% Change 1931 over 1930
Alabama	14,376	15,403	15,218	+ 1.22	95,409	100,811	— 5.36
Arizona	6,898	6,536	6,111	+ 6.95	44,133	44,631	— 1.12
Arkansas	9,183	13,209	13,886	— 4.88	72,700	80,299	— 9.46
Colorado	17,350	20,660	18,541	+11.42	104,800	97,591	+ 7.39
Connecticut	22,716	21,870	22,967	— 4.78	120,343	124,510	— 3.35
Delaware	3,361	3,929	3,101	26.70	21,186	19,622	+ 7.97
District of Columbia	8,437	8,581	8,244	+ 4.09	52,664	45,819	+14.94
Florida	17,840	19,632	16,631	+18.04	142,387	137,416	+ 3.62
Georgia	19,144	20,556	20,035	+ 2.60	126,647	128,133	— 1.16
Idaho	6,498	6,325	6,614	— 4.37	33,044	32,886	+ 0.48
Illinois	93,223	102,366	96,318	+ 6.28	569,663	542,158	+ 5.07
Indiana	44,938	49,414	46,660	+ 5.90	274,184	259,781	+ 5.54
Iowa	38,336	44,030	40,127	+ 9.73	242,262	222,067	+ 9.09
Kansas	(b)47,577	51,202	48,296	+ 6.01	242,149	231,527	+ 4.59
Kentucky	15,851	17,253	16,625	+ 3.78	98,235	94,045	+ 4.46
Louisiana	16,576	16,664	15,455	+ 7.82	105,774	105,401	+ 0.35
Maine	12,271	14,866	13,979	+ 6.35	59,042	54,040	+ 9.26
Maryland	17,482	17,674	18,090	— 2.29	104,888	101,562	+ 3.27
Massachusetts	54,473	59,770	55,103	+ 8.47	312,154	296,137	+ 5.41
Michigan	75,316	83,551	80,015	+ 4.42	452,401	448,245	+ 0.93
Minnesota	41,615	50,307	43,210	+16.42	251,016	220,617	+13.78
Mississippi	(a)11,500	(a)12,322	10,146	+21.45	76,325	77,256	— 1.21
Missouri	41,981	45,431	43,008	+ 5.63	266,141	249,436	+ 6.70
Montana	7,915	8,140	8,257	— 1.42	45,628	40,631	+12.30
Nebraska	21,735	23,995	24,031	— 0.15	134,101	131,198	+ 2.21
Nevada	2,564	2,460	2,104	+16.92	13,245	10,352	+27.95
New Hampshire	6,956	8,700	8,153	+ 6.71	35,332	33,882	+ 4.28
New Jersey	54,042	50,604	56,422	—10.31	314,469	304,803	+ 3.17
New Mexico	5,162	5,551	5,181	+ 7.14	30,379	30,308	+ 0.23
New York	152,703	157,629	154,361	+ 2.12	885,800	840,886	+ 5.34
North Carolina	18,689	22,303	21,329	+ 4.57	132,568	140,506	— 5.65
North Dakota	10,529	13,247	13,301	— 0.41	68,522	66,361	+ 3.26
Ohio	90,349	99,113	94,767	+ 4.59	561,827	561,088	+ 0.13
Oklahoma	32,491	28,458	32,072	—11.27	178,191	186,760	— 4.59
Oregon	18,320	16,699	19,361	—13.75	102,167	96,797	+ 5.55
Rhode Island	9,405	10,435	8,890	+17.38	54,581	48,694	+12.09
South Carolina	10,498	10,911	10,361	+ 5.31	68,980	66,845	+ 3.19
South Dakota	13,534	15,418	14,686	+ 4.98	83,710	79,628	+ 5.13
Tennessee	16,071	18,132	20,305	—10.70	118,061	119,879	— 1.54
Texas	77,273	80,127	76,557	+ 4.66	474,281	460,599	+ 2.97
Utah	6,204	7,290	6,645	+ 9.71	36,065	35,319	+ 2.11
Vermont	4,959	6,027	5,736	+ 7.32	24,817	23,654	+ 4.92
Virginia	22,282	23,690	22,010	+ 7.63	132,824	126,084	+ 5.35
Washington	27,209	24,449	29,721	—17.74	158,868	154,746	+ 2.66
West Virginia	13,533	14,916	14,739	+ 1.20	76,268	75,804	+ 0.61
Wisconsin	43,621	48,914	48,167	+ 1.55	253,292	239,951	+ 5.56
Wyoming	4,376	4,829	4,646	+ 3.94	22,458	20,341	+10.41
Total	1,311,362	1,403,587	1,360,182	+ 3.19	7,873,981	7,609,106	+ 3.48
Daily average	43,712	45,277	43,877	+ 3.19	37,141	35,892	+ 3.48
Increase over previous year:							
Amount of Increase	.....	43,405	.....		264,875	.....	
Percentage Increase in Daily Average	.....	3.2%	.....		3.5%	.....	

(a) Estimated. (b) Revised.

Sales Gain After 12,000 Mile Air Trip

PONCA CITY, Okla., Sept. 26.—A sales campaign by air which covered nearly 12,000 miles in 78 days and resulted in a noticeable increase in sales, was recently completed by sales executives of the Continental Oil Co. here.

The trip was made in two company-owned planes. It was primarily for drumming up business through direct contact with customers, to promote good will and to catch the eye of the motoring public. The trip covered 30 states, two Canadian provinces and included short flights over the Atlantic, Pacific, the Gulf of Mexico and the Great Lakes.

The air trip began June 2 and ended Aug. 18. Not only did this means of transportation save 50 per cent in time, but it saved a similar amount in salaries chargeable to the trip, food, lodging and incidental expenses, according to Emerson G. Smith, supervisor of company publications. Depreciation of the planes, he points out, would have continued whether they were used or not and pilot's salaries would have been the same.

The company draws a comparison in the distances covered by the Conoco prosperity tour and the annual National Air Reliability Tour for the Edsel B. Ford trophy. This year's reliability tour crossed 18 states and flew 4000 air miles—the average performance record being not nearly as phenomenal as the Continental's air tour.

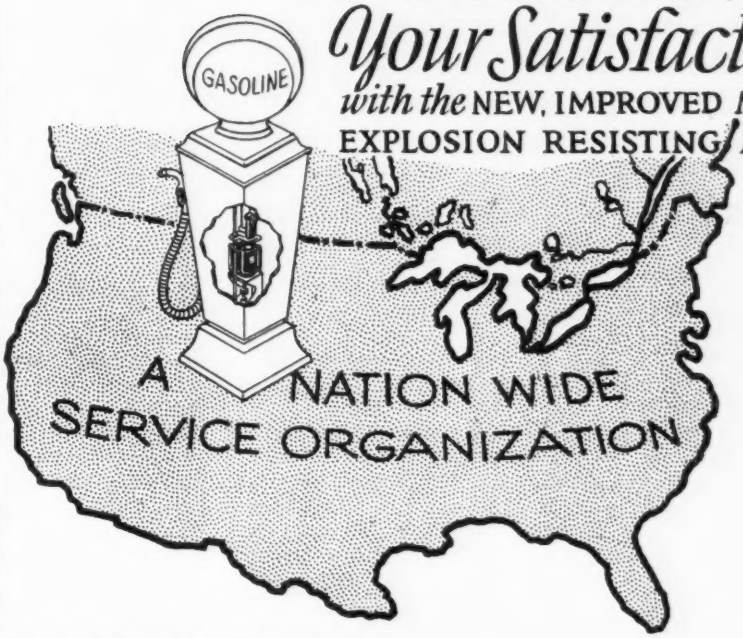
Continental officials making the air trip included: Harry J. Kennedy, general sales manager; O. B. Lloyd and P. J. Ryan, assistant general sales managers; Wesley I. Nunn, advertising manager; Frank Moore, special sales representative; O. M. Bounds, manager of the aviation sales division; Tip Schier, pilot; and G. McJunkin, mechanic. All traveled in the Ford plane except Bounds, who piloted the Curtiss-Robin, a much smaller ship.

Colorado To Check Use Of Gas Tax Funds

DENVER—An audit is to be made of the use to which Colorado counties have applied their share of the state gasoline tax receipts. In some counties, it is said, county shares of the gasoline tax exceeds tax receipts from other sources and some of the gasoline tax money has been diverted from highway and bridge purposes.

The audit is to be made by the state highway department and, it is said, an effort will be made to force return of gasoline tax funds to highway funds if diversions are found.

To GUARANTEE *Your Satisfaction with the* NEW, IMPROVED MASTER EXPLOSION RESISTING MOTOR



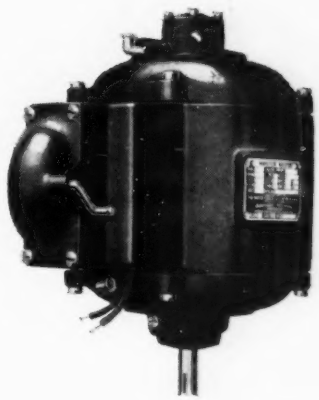
WHEN the Master Explosion Resisting Motor and Switch Unit is the power drive on your gasoline pump, you can rest assured of dependable operation.

Back of the built-in quality of Master Motors stands a complete, nation-wide service organization. More than 100 Master service stations are located at strategic points to make service, if needed, promptly available to any part of the country where your pumps are located.

The Master reputation for quality motors and ready service has long been established in many fields of motor application.

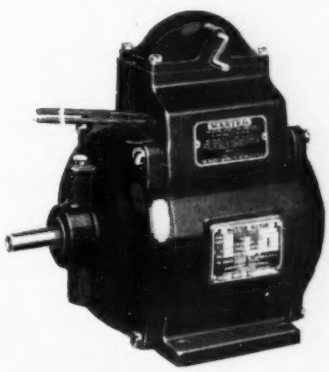
In the selection of motors for your pumps, you owe it to yourself to give full consideration to Master Quality, Master Service, and the pronounced advantages of the Master Motor and Switch combined in a Unit. Let us explain.

THE MASTER ELECTRIC COMPANY
Dayton, Ohio



Above: The Master Motor and Switch Unit for Vertical Mounting.

Below: For Horizontal Mounting.



POWER DIAMOND

MASTER GUARANTEED MOTORS

Transactions in Oil Shares on New York Stock Exchange

1930 High	1930 Low	1931 High	1931 Low	Listed Shares	Par Value	Company	Div. Rate Period	Last Div. Paid	Transactions Week Ended Sept. 26 Sales	High	Low	Last	Week's Change
31½	16½	23	14½	922,075	N.P.	Amerada Corp.	50cQ	July 31, 31	4,800	15¾	†14½	15½	0
37	5⅛	12⅜	3¼	209,180	N.P.	American Republics Corp.	....	.....	600	4	†3¼	3¼	0
51	30	31	20	2,240,000	$25	Associated Oil Co.	25cQ	June 30, 31	.....	...	...	...	...
51⅜	16⅝	23⅝	11	2,691,764	25	Atlantic Refining Co.	25cQ	June 15, 31	31,500	13¼	†11	11⅞	— ⅞
34	8⅝	14½	5	2,257,678	25	Barnsdall Corp. A	....	May 11, 31	37,300	6½	†5	6	— ⅜
35	21	25	12	2,060,966	25	California Petroleum Corp.	....	Jan. 1, 29	.....	...	...	...	...
20⅝	8¾	10¼	7⅛	1,444,970	N.P.	Colonial Beacon Oil Co.	....	.....	4,000	9½	8	9½	+ ½
30½	7¾	12	5	4,712,745	N.P.	Continental Oil Co. (Del.)	....	.....	45,300	7¾	6	6⅝	— ⅛
71⅛	22⅜	47	11	413,333	N.P.	General Asphalt Co.	75cQ	June 15, 31	26,600	14⅛	†11	12	0
116⅞	29¼	68½	27	97,071	$100	Houston Oil Co.	....	.....	15,000	33	27	28	— 1¾
11⅞	6¾	14⅛	5⅜	673,414	25	do new	....	.....	11,700	6⅞	†5⅛	5¾	0
28⅜	3	4⅝	2	556,356	10	Indian Refining Co.	....	Dec. 15, 20	3,600	2½	2½	2½	0
12	3½	4½	1⅞	1,309,003	N.P.	Louisiana Oil Ref'g. Corp.	....	.....	6,600	3¼	†1⅞	2	— ⅜
90	66	55	34	40,000	$100	do pfd.	$1.62½Q	Aug. 15, 31	.....	...	...	...	...
10⅜	1¾	3⅜	½	330,000	N.P.	Maracaibo Oil Exploration Co.	....	.....	4,800	1⅜	†½	¾	— ¼
182	150	171	90	459,428	$100	Mexican Petroleum Co.	....	Apr. 20, 31	.....	....	....	....	....
100	100	100	100	120,000	100	do pfd.	$2Q	July 20, 31	.....	....	....	....	....
37	9¾	20¾	10⅜	1,244,383	N.P.	Mexican Seaboard Oil Corp	....	Oct. 15, 24	.....	....	....	....	....
33	11	16¾	5¾	1,857,912	N.P.	Mid-Continent Petroleum Corp.	....	Feb. 16, 31	19,700	7¼	6	6⅜	— ½
32	16	19½	6½	6,648,052	N.P.	Ohio Oil Co.	....	Mar. 14, 31	35,900	8¾	†6½	7⅜	— ⅜
64¼	42	35⅛	25	1,000,000	$50	Pan Amer. Pet. & Trans. Co.	40cQ	July 20, 31	.....	...	...	...	...
67½	30	36½	24	2,473,577	50	do B non-voting	40cQ	July 20, 31	700	28	25	25	— 5
12¾	1¾	4¼	1⅜	199,370	N.P.	Panhandle Prod. & Refg. Co.	....	.....	100	1⅜	†1⅜	1⅜	— ⅛
80	47½	20	10	25,666	$100	do pfd.	....	July 2, 23	20	11½	11½	11½	— 3½
27½	5⅞	10⅞	4¾	3,726,084	N.P.	Petroleum Corp. of America	25cQ	June 1, 31	35,700	5¾	†4¾	5	0
44¾	11½	16⅝	4¾	4,416,251	N.P.	Phillips Petroleum Co.	....	Jan. 2, 31	34,500	7	5⅛	6	0
2½	½	1½	½	1,184,917	$25	Pierce Oil Corp.	....	.....	3,000	⅝	½	½	0
52	7½	23¾	6½	150,000	100	do pfd.	....	Feb. 1, 22	600	7	6½	7	— ½
7⅛	1⅜	3⅜	1	2,500,000	N.P.	Pierce Petroleum Corp.	....	Feb. 16, 31	7,900	1⅜	1⅛	1¼	— ⅛
54	11¼	20⅜	6½	2,441,432	$25	Prairie Oil & Gas Co.	....	Mar. 31, 31	5,200	8⅞	7½	8	— ⅜
60	16⅜	26½	12½	4,050,000	25	Prairie Pipe Line Co.	75cQ	July 1, 31	8,200	13⅜	†12¼	12⅞	— ⅜
11⅞	1	6	1⅞	749,017	50	Producers & Refiners Corp.	....	Sept 15, 23	1,400	2⅜	2	2⅜	+ ⅜
40	11½	16	6	56,907	50	do pfd.	....	May 4, 25	.....	....	....	....	....
27¼	7⅜	11⅞	5½	3,038,370	25	Pure Oil Co.	....	Sept. 1, 30	19,300	6⅜	5⅝	5¾	— ⅜
114¼	90½	101⅞	66⅝	130,000	100	do 8% pfd.	$2Q	July 1, 31	360	77	70⅛	74	— 5½
28¼	4⅛	6⅝	1	2,126,250	N.P.	Richfield Oil Co. (California)	....	Sept. 1, 30	2,300	1¼	1	1⅛	0
25⅜	5	10¼	2½	1,235,542	N.P.	Rio Grande Oil Co.	....	July 25, 30	6,600	3¼	†2½	3	0
56½	36⅞	42⅜	13½	681,728	$13.40	Royal Dutch Co. (N. Y. Shares)	93.85c	Aug. 4, 31	14,800	20¾	†13½	18½	+ 4½
48⅜	26	34	10	68,810	£2	Shell Transp & Trading Co.	72.6c	July 23, 31	160	10	†10	10	— ½
25⅛	5¼	10¼	4	13,070,625	N.P.	Shell Union Oil Corp.	....	June 30, 30	25,600	4⅞	†4	4⅛	0
106¼	55	78	23⅝	400,000	$100	do pfd	....	July 1, 31	2,200	30	†23⅝	28	+ 2⅞
37	5⅜	11	4¾	869,271	10	Simms Petroleum Co.	....	Sept. 15, 30	6,400	6	†4¾	6	0
32	9¼	15⅞	6¼	6,148,294	N.P.	Sinclair Cons Oil Corp.	....	Apr. 15, 31	82,300	8	6¼	7¼	0
112¼	86	103	77	141,294	$100	do pfd.	$2Q	Aug. 15, 31	200	94	93	93	— 8
42	10½	12⅞	3⅛	1,000,069	25	Skelly Oil Co.	....	Dec. 15, 30	2,400	4⅞	4⅛	4⅛	— ¼
99¾	42	62	10	120,000	100	do pfd.	....	May 1, 31	2,500	19½	12½	13	— 1
....	....	21	13¼	31,923,072	25	Socony Vacuum Corp.	40cQ	June 15, 31	112,800	16⅞	†13¼	15	0
106¾	98	105¼	39¾	764,836	100	S. O. Export Corp. ptd.	$2.50 S.A.	June 30, 31	1,600	104¼	†99¾	100	— 3
75	42¼	51¾	31⅛	13,102,900	N.P.	S. O. California	62½cQ	June 15, 31	43,400	34⅝	31⅛	32½	— 1⅜
49	14½	19	8¾	320,000	$25	S. O. Kansas	....	Mar. 16, 31	2,200	11⅝	9	10⅞	+ ⅜
84⅞	43½	52⅛	30⅛	25,548,466	25	S. O. New Jersey	††25cQ	June 15, 31	109,200	34½	31	31⅜	— 1¾
46⅜	19¾	26	13⅞	17,849,353	25	S. O. New York	40cQ	June 15, 31	.....	...	...	...	...
70	39	45¼	30	1,544,275	N.P.	Sun Oil Co.	25cQ	June 15, 31	1,800	31¾	30	30⅛	+ ⅛
108½	97¾	104½	94	100,000	$100	do pfd.	$1.50Q	Sept. 1, 31	350	99⅛	94	94	— 5⅞
9⅜	¾	1¾	⅝	776,979	N.P.	Superior Oil Corp.	....	.....	2,200	¾	⅝	⅝	— ⅛
60½	28¼	36¼	18	9,851,163	$25	The Texas Corp.	50cQ	July 1, 31	45,100	20⅜	18¼	19½	— ½
14½	4	6½	2⅛	930,404	10	Texas Pacific Coal & Oil Co.	....	Dec. 31, 29	6,400	3¼	2½	3⅛	— ⅜
17¾	5⅞	9	4	5,996,965	N.P.	Tide Water Associated Oil Co.	....	Feb. 16, 31	33,700	5⅛	4	4¼	+ ⅛
89¾	53	68	28¼	732,644	$100	do pfd.	$1.50Q	July 1, 31	300	32	†28¼	28¼	— 5¼
31	12	18	10½	2,191,820	N.P.	Tide Water Oil Co.	15cQ	June 30, 31	.....	...	...	...	...
94⅞	68	83	48¾	199,446	$100	do pfd.	$1.25Q	Aug. 15, 31	200	50	†48¾	48¾	— 1¼
50	20⅛	26⅝	12⅛	2,325,006	25	Union Oil Co. of California	50cQ	Aug. 10, 31	12,400	14½	†12⅛	13½	— ¾
38½	23	25⅝	19	1,254,048	N.P.	Union Tank Car Co.	40cQ	Sept. 1, 31	3,200	19¼	19	19⅛	+ ⅛
27	4¼	7¾	1⅝	769,531	N.P.	Warner Quinlan Co.	....	July 3, 30	800	2¼	2	2	— ⅛
21	6½	9⅜	3½	428,967	N.P.	H. F. Wilcox Oil & Gas Co.	....	May 10, 28	1,500	4⅜	3¾	4⅜	+ ⅝

*New high †New low ††Also extra—S. O. New Jersey 25c. Total sales 886,990

Pittsburgh Stock Exchange

Transactions Week Ended Sept. 25, 1931

	Sales	High	Low	Last	Change Over Week
Ark. Nat. Gas.	125	3	2¾	3	— ½
†do pfd.	755	5⅜	5	5	—1
Col. Gas & Elec.	50	21	21	21	0
Devonian Oil.	650	4½	4½	4½	— ¼
‡Leonard Oil & Dev.	600	.50	.50	.50	—.25
†Lone Star Gas.	46,376	10¾	7⅞	10	—1
††do pfd.	250	100	98	98	—2⅛
†Pet. Exploration.	100	10	10	10	—5
Plymouth Oil.	570	8	7	7	—1½
†Shamrock Oil & Gas.	200	1¼	1	1	—1
††Western Public Service.	18,175	5⅛	3½	4½	— ⅝

†New low record. ‡Unlisted.

Pittsburgh Curb

Gulf Oil.	100	44	4	4	0

New York Curb Bonds

Week Ending Sept. 25

	High	Low	Last	Change
Beacon Oil 6s '36	99	96¼	98	+1
Cities Serv. 5s '66	56	52½	54	—2
Cities Serv. 5s '50	59⅞	53⅛	56⅛	— ⅝
Cities Serv. G. 5½s '42	60	56½	56⅝	—2½
Cities Serv. G. P. 6s '43	72	71	71	—5⅛
Cont. Oil 5s '37	84⅛	83¼	83¼	—1
Empire O & R 5½s '42	52	48⅛	48¾	—3⅞
Gulf Oil 5s '57	102½	98⅛	98⅛	—4⅜
Gulf Oil 5s '47	101	99⅛	100	— ½
Indep. Oil 6s '39	89	85	86	—1¼
Sun Oil 5½s '39	100	98½	98½	—1⅝

Aviation Gasoline Prices

(*Continued from Page 85*)

S. O. LOUISIANA

	T.W.	Tax	Total T.W.
New Orleans, La.	18	6	24
Nashville, Tenn.	20	6	26
Memphis, Tenn.	19	6	25

2c per gal. discount off above posted retail t.w. prices to dealers and commercial consumers.

S. O. NEBRASKA

Omaha	16.25	4	20.25

2c per gal. refund to reseller.

CONTINENTAL OIL CO.

Denver, Colo.	13	4	17
Cheyenne, Wyo.	14	4	18
Helena, Mont.	18	5	23
Salt Lake City, Utah	16.5	4	20.5
Albuquerque, N. M.	16	*6	22
Boise, Ida.	18.5	5	23.5

*Tax includes 5c state tax and 1c city tax.

S. O. CALIFORNIA

Phoenix, Ariz.	17.5	4	21.5
Los Angeles, Cal.	16.5	3	19.5
San Francisco, Cal.	17	3	20
Reno, Nev.	21	4	25
Portland, Ore.	17.5	4	21.5
Seattle, Wash.	17.5	3	20.5
Spokane, Wash.	21.5	3	24.5

Note: 4c per gallon added to t.w. price, in S. O. California territory to customers taking delivery direct into the fuel tank of planes.

New York Bonds

Week Ending Sept. 25

	High	Low	Last	Change
Asso. Oil gold 6s	103⅛	103	103	— ½
Atlantic Refg. deb. 5s	102	98¾	98¾	—3¼
Cal. Pet. 5s	79	79	79	0
Cal. Pet. 5½s	91	90	90	0
General Pet. 5s	101⅞	101⅞	101⅞	— ⅞
Humble Oil & Refg. 5s	102⅞	100½	100½	—2½
Humble Oil & Refg. 5½s	102¼	100⅜	100⅜	—1⅞
Pan Amer. P & T 6s	102¼	101¾	101¾	0
Pan Amer. P & T 6s	31⅛	29	29	—2⅛
Phillips Pet. 5½s	59	54½	57	+ ¾
Pure Oil 5½s	80	75	79½	— ½
Pure Oil 5½s	80	75	77	—2
Richfield Oil of Calif. 6s	24⅜	20¾	20¾	—3¾
Shell Union Oil 5s	67½	66	66¼	—1¼
Shell Union Oil 5s with war.	67¼	66	66½	— ½
Sinclair Con. Oil 7s	90½	81½	87	— ⅞
Sinclair Con. Oil 6½s	87⅞	79	83	—4
Sinclair Con. Crude 5½s	101¾	98¾	98¾	—3
Sinclair Pipeline	97½	94	96	0
Skelly Oil 5½s	59	58	58½	— ½
S. O. N. J. 5s	103½	101¾	102½	—3
S. O. N. Y. 4½s	100	98	99¾	+ ½
Union Oil of Calif. 6s A	102½	100½	101	—1
Union Oil of Calif. 5s C	99	98½	99	0
Union Oil of Calif. 5s war.	80	78	80	—2
Warner-Quinlan 6s	40	39	39	—1
White Eagle Oil 5½s	103½	102	102⅛	— ¾

Oil Trademarks For Copyright

THE following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C. trademark specialists.

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Pure Oil Colors Regular Gasoline Golden

CHICAGO—Since the introduction of third grade gasoline there has been some confusion in the trade over blue colored motor fuels. Many mid-western marketers colored their third grade blue, and refer to "blue" gasoline as a lower price fuel. In other sections of the country blue has been the color for regular grade anti-knock gasoline of some companies.

To escape this confusion of "blue" colored gasoline meaning low priced fuel, Pure Oil Co. has changed from blue to golden as the color for its Gyro vapor-phased processed gasoline, sold under the trade name Purol-Pep. Pure Oil's third grade is white.

Shell Executive Sent To Los Angeles

SALT LAKE CITY—K. V. Clifford, district manager of Utah and Wyoming for the Shell Oil Co. of California, has been transferred to Los Angeles to be assistant to the division manager of the Shell marketing organization there.

Mr. Clifford is being succeeded in the Utah and Wyoming district by W. M. Wilt who has been district manager for Nevada with headquarters at Reno.

Pump Shipments Reported

WASHINGTON—Statistics on shipments of gasoline and kerosine pumps and lubricating oil outfits are now available through monthly reports from the Department of Commerce. Twenty-two manufacturers supply data.

In addition to listing shipments of eleven types of pumps the report gives the f.o.b. factory value. The first report covers statistics for May, June, and July. Information for previous months is not available. A graph, of number of units shipped and their value, is supplied also.

MORRIS, Minn.—C. J. Nelson has opened a super service station here.

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Standard Oil Stocks on New York Curb Market

1930 High	1930 Low	1931 High	1931 Low	Shares Issued	Par Value	Company	Div. Rate Period	Last Div. Paid	Transactions Week Ended Sept. 26 Sales Shares	High	Low	Last	Week's Change
25	11¼	16	6¼	40,000	$25	Borne Scrymser Co.	....	Oct. 15, 30	100	7	7	7	— 5½
69	39⅞	56	40	200,000	50	Buckeye Pipe Line Co.	$1Q	June 15, 31	450	46⅛	45	46¼	— 5⅞
184⅞	100¼	129½	98½	120,000	25	Chesebrough Mfg. Co.	††$1Q	June 30, 31	100	98½	†98½	98½	— 5
7⅝	3	3½	1⅞	5,977,873	N.P.	Creole Petroleum Co.	....	.....	16,200	2⅛	†1⅞	1⅞	— ⅛
65¾	20¼	39	20⅝	30,000	50	Cumberland Pipe Line Co.	50cQ	June 15, 31	150	24¼	23	24½	+ ⅜
54¾	26	36	20	50,000	100	Eureka Pipe Line Co.	$1Q	July 1, 31	1,050	23⅞	†20	21½	— 5½
6¾	2⅛	3	1	280,000	N.P.	Galena Oil Corp.	....	.....	800	2⅞	2	2¾	+ ⅜
119	57¼	72	9⅝	2,974,645	$25	Humble Oil & Ref'g. Co.	50cQ	July 1, 31	4,900	55	†49⅝	49⅝	— ⅜
30	15	18½	8⅞	26,557,496	N.P.	Imperial Oil Corp.	12½cQ	Sept. 1, 31	24,700	10¼	†8⅞	9¼	— 1⅛
28	15	18	8¾	.....	N.P.	do registered	12½cQ	Sept. 1, 31	1,900	10	†8¾	8¾	— ⅝
41	14½	21⅛	7	300,000	$10	Indiana Pipe Line Co.	25cQ	Aug. 15, 31	200	8¼	†7	8	0
24	11⅜	15½	8⅛	14,247,088	N.P.	International Petroleum Co.	25cQ	June 15, 31	48,900	9¾	†8⅛	8⅞	— ⅞
22⅜	11½	17½	9⅝	509,000	$12.50	National Transit Co.	25cQ	June 15, 31	1,500	11	†9⅝	10⅝	— ⅝
21	10⅛	14½	5⅞	100,000	10	New York Transit Co.	††15cQ	July 15, 31	2,300	7	†5⅞	6¼	— 1⅜
54	26¼	34¼	20	40,000	50	Northern Pipe Line Co.	††$1.50Q	July 1, 31	350	24⅞	†20	20⅛	—10
108	100⅜	102⅞	80	579,465	100	Ohio Oil Co. pfd.	$1.50Q	June 15, 31	200	89¼	88¾	89¼	— 1¼
32	12	15½	8	400,000	25	Penn Mex. Fuel Co.	75c	June 24, 31	200	8	8	8	0
33	4⅞	16½	3¼	160,000	25	Solar Refining Co.	....	Dec. 20, 29	1,000	15¾	15½	15¾	0
20⅛	6¾	17	10	100,000	10	Southern Pipe Line Co.	50cQ	Sept. 1, 31	.....	....	....	....	....
45⅞	18	23⅞	12⅜	1,200,000	25	South Penn Oil Co.	25cQ	June 30, 31	900	15⅛	13¾	14	— ¾
64	32	42½	25	35,000	50	Southwest Pa. Pipe Lines.	$1Q	July 1, 31	550	37	†25	25	—12
59⅞	30	38½	19⅛	16,850,587	25	S. O. Indiana	50cQ	June 15 31	54,200	21½	20	20⅛	— 1⅝
40½	18⅞	23⅝	15⅛	2,588,735	25	S. O. Kentucky	40cQ	June 30, 31	14,500	16¾	†15⅛	15⅞	— ¾
48⅞	34	36½	19¼	190,822	25	S. O. Nebraska	50cQ	June 20, 31	300	25	22	24¾	— 2¼
108½	43¼	62½	35	766,667	25	S. O. Ohio	62½cQ	July 1, 31	250	45	40¼	40¼	— 7½
....	....	115¼	100	120,000	100	do 5% pfd.	$1.25Q	July 15, 31	60	101	101	101	0
10	4	10	2⅝	34,158	25	Swan Finch Oil Corp.	....	Jan. 15, 29	.....	....	....	....	....
97⅞	45⅜	69¾	22⅛	5,624,158	25	Vacuum Oil Co.	50cQ	June 20, 31	.....	....	....	....	....

*New high †New low ††Also extra—Chesebrough 50c; N. Y. Transit 10c; Northern P. L. 50c.

Oil and Royalty Stocks on New York Curb

1930 High	1930 Low	1931 High	1931 Low	Par Value		Transactions Sales Shares	Week Ended Sept. 26 High	Low	Last	Week's Change
4½	½	1¾	½	N.P.	American Maracaibo.	17,000	½	½	½	0
16¾	4⅜	6½	2½	N.P.	Arkansas Nat. Gas.	1,200	3¾	†2½	3	0
16⅝	4⅝	6¾	2½	N.P.	do A.	19,100	3⅜	†2½	3¼	+ ¼
8⅛	6¼	7	3⅞	$10	do pfd.	900	5⅛	†3⅞	3⅞	— 1½
1	¼	1	⅛	N.P.	Atlantic Lobos.	100	¼	¼	¼	0
1⅛	⅜	3¼	⅜	$50	do pfd	.....	....	....	....	....
21	13⅜	16⅞	8⅜	N.P.	British American coup.	2,700	16	†8⅜	16	+ ⅝
....	....	16¾	10	N.P.	do registered	1,700	15½	13⅜	15	— ⅞
2¾	¾	2⅝	½	$¼	Carib Syndicate.	11,800	⅝	½	⅝	0
44¼	13½	20¾	6¼	N.P.	Cities Service.	115,000	8¼	†6¼	7⅜	0
93⅞	78¼	84¾	58½	$100	do pfd.	2,800	60½	†58½	58¾	— 2
9	7¼	7½	4⅞	10	do pref. B.	.....	....	....	....	....
89⅞	80	84	59½	100	do pref. BB.	200	64	63	62	— 9
8¼	1⅛	3⅛	¾	N.P.	Colon Oil Corp.	9,600	1⅛	¾	¾	— ¼
21	3⅜	7½	2	N.P.	Col. Oil & Gas. vtc.	18,600	2⅜	2	2	— ⅜
5⅞	2	2¾	1¼	$1	Consolidated Royalty.	300	1⅝	1½	1½	— ⅛
74¾	1¼	3¾	1	N.P.	Cosden Oil.	3,600	1¼	1⅛	1¼	0
70	10¼	15	1	$100	do pfd.	.....	....	....	....	....
1	¼	⅝	⅛	N.P.	Crown Central Petrol.	300	⅜	¼	⅜	+ ¼
21¾	2½	5	2	N.P.	Darby Petroleum.	800	3½	2⅜	2⅜	— ⅛
11	2	6	2½	N.P.	Derby Oil & Refining.	900	3	2⅝	2⅝	— ⅛
60	30	40¼	25	N.P.	do pfd.	.....	....	....	....	....
106⅞	58½	76	38	$25	Gulf Oil Corp.	11,800	48	40¼	42½	— 1½
40¾	36	9¾	9¾	....	Honolulu Oil Corp.	.....	....	....	....	....
47½	12⅜	16⅞	6	N.P.	Indian Ter. Ill'g. Oil A	800	6½	†6	6½	— ⅞
53½	12⅜	16⅞	6¼	N.P.	do B.	200	6¼	†6¼	6¼	— 1⅜
1¾	⅜	⅝	¼	$5	Intercontinental Petrol.	7,500	⅜	¼	⅜	+ ⅛
3	⅞	1⅞	½	N.P.	Kirby Petroleum.	.....	....	....	....	....
4¾	½	1½	½	$25	Leonard Oil Devel.	10,800	⅝	½	½	— ⅛
29	4⅞	6¾	3⅜	N.P.	Lion Oil Refining.	300	3½	†3⅜	3⅜	— ⅛
55⅞	19⅝	29	8¼	N.P.	Lone Star Gas.	77,700	10¼	†8¼	10	— ¼
31	5½	....	....	$25	MacMillan Petroleum.	.....	....	....	....	....
½	⅛	½	⅛	$1	Magdalena Syndicate.	6,800	⅛	⅛	⅛	— 1/16
16	3	5	3⅛	N.P.	Margay Oil Co.	400	4	†3⅛	3⅛	— ⅞
7½	1¾	4⅞	1½	N.P.	Mexico-Ohio Oil.	1,700	4½	2⅝	2⅝	— ⅛
....	....	8⅞	2	N.P.	Michigan Gas & Oil.	.....	....	....	....	....
11¾	2¼	4⅝	2	N.P.	Mid. States Pet. A vtc.	300	2	1½	1½	— ½
6	⅝	1½	¾	N.P.	do B vtc.	800	¾	⅝	¾	0
36⅛	5	11	2	$5	Missouri-Kansas P.L.	8,000	3⅝	†2	3¼	— ⅝
6	⅜	⅝	¼	1	do B vtc.	3,400	¼	¼	¼	0
⅜	⅛	⅞	⅛	1	Mountain & Gulf.	.....	....	....	....	....
12½	3¾	5⅞	3⅜	10	Mountain Producers.	2,700	3⅜	3	3⅛	— ¾
41⅜	19⅞	26½	15	N.P.	National Fuel Gas.	5,500	17⅜	†15	15⅞	— 1¼
3½	1⅛	1½	½	$5	New Bradford Oil.	100	⅝	⅝	⅝	0
3⅛	2⅛	2⅛	1½	10	New England Fuel.	.....	....	....	....	....
16⅜	4	....	....	25	N. Y. Pet. Royalty.	.....	....	....	....	....
....	....	6½	6½	10	N. American Oil.	.....	....	....	....	....
11¼	2⅛	3¼	1	N.P.	North Central Texas.	300	1¼	†1	1	— ½
4⅛	⅝	2½	⅜	N.P.	North European Oil.	3,200	⅜	⅜	⅝	+ ⅛
11⅜	3⅜	5	1	N.P.	Oilstocks Ltd. A.	100	2	2	2	— ½
11½	4½	5	2½	N.P.	do B.	.....	....	....	....	....
19½	5½	15	4⅜	N.P.	Pacific Western Oil.	4,000	4¾	†4⅜	4⅜	— ½
2½	¼	¾	⅛	N.P.	Pandem Oil.	2,200	3/16	1/16	3/16	0
4⅜	1	2	⅜	N.P.	Pantepec of Venezuela.	500	⅜	⅜	⅜	— 1/16
5⅞	½	1⅜	⅜	....	Petroleum Corp. war.	200	⅜	¼	⅜	0
27½	16¼	19	6¾	$5	Plymouth Oil.	4,000	8⅜	7	7¼	— 1⅝
8	3½	4½	½	N.P.	Producers Royalty.	1,400	⅝	⅝	⅝	— 1/16
99	81¾	83½	15¾	$100	Pure Oil 6% pfd.	.....	....	....	....	....
10½	1½	2½	1¾	N.P.	Red Bank Oil.	.....	....	....	....	....
5⅜	⅝	2¼	½	N.P.	Reiter-Foster Oil.	1,800	1¼	1	1¼	— ⅛
23½	6½	11	1⅜	$25	Richfield Oil pfd.	.....	....	....	....	....
25	2¼	5	1¾	N.P.	Root Refining pfd.	200	3	3	3	— 2
12⅞	5½	3¾	1	$10	Roy. Corp. of Amer. pfd	.....	....	....	....	....
8⅜	2	2⅞	1¼	N.P.	Ryan Consolidated.	3,500	1½	1	1½	— ⅛
2½	⅛	1⅜	½	$10	Salt Creek Consol.	100	½	½	½	0
15¼	5¼	7⅝	4	10	Salt Creek Producers.	2,000	5⅜	4¾	5	+ ⅛
8	1¾	5¼	2	25	Shreve. El Dorado P.L.	.....	....	....	....	....
17	6	7½	3¾	N.P.	Southland Royalty.	700	4¼	4	4	0
10	2	5¼	1	$5	Sunray Oil.	3,600	1⅜	1	1	— ⅛
19⅛	8	12⅞	6¼	N.P.	Texon Oil & Land.	900	7	6⅜	7	— ½
47½	19	24½	13¼	$25	Union Oil Associates.	500	13	11⅜	11⅜	— 2¼
4⅛	⅝	1⅞	½	5	Venezuela Petroleum.	200	⅝	⅝	⅝	— 1/16
5	2	3½	2⅜	1	Woodley Petroleum.	1,100	1½	1⅛	1⅛	— ⅜
2½	⅝	2¼	¼	N.P.	Y Oil & Gas.	1,400	⅞	¾	¾	— ⅛

low

Oil Dividends

Declared Last Week

Company and Period	Amount	Stock of Record Payable	
Mexican Pet. pfd. q.	$2.00	Oct. 20	Sept. 30
Pan Amer. P. & T. com.	40c	Oct. 20	Sept. 30
do B com.	40c	Oct. 20	Sept. 30
Southland Royalty	5c	Oct. 15	Oct. 1

Awaiting Payment

Company and Period	Amount	Stock of Record Payable	
Amer. Natl. Gas pfd. q.	15c	Oct. 1	Sept. 15
British American q.	20c	Oct. 1	Sept. 14
Chesebrough Mfg. q.	$1	Sept. 30	Sept. 11
do extra	50c	Sept. 30	Sept. 11
Cities Serv. m.	2½c	Oct. 1	Sept. 15
do m.	2½c	Nov. 2	Oct. 15
do stock m.	½%	Oct. 1	Sept. 15
do stock m.	½%	Nov. 2	Oct. 15
do pfd. m.	50c	Oct. 1	Sept. 15
do pfd. m.	50c	Nov. 2	Oct. 15
do pfd. B m.	5c	Oct. 1	Sept. 15
do pfd. B m.	5c	Nov. 2	Oct. 15
do pref. BB m.	50c	Oct. 1	Sept. 15
do pfd. BB m.	50c	Nov. 2	Oct. 15
Gulf Oil Corp. q.	$1½c	Oct. 1	Sept. 20
Humble Oil & Refg. q.	50c	Oct. 1	Sept. 1
Lone Star Gas q.	22c	Sept. 30	Sept. 15
McColl Frontenac Oil pfd. q.	$1.50	Oct. 15	Sept. 30
Mountain Prod. q.	25c	Oct. 1	Sept. 15
National Refining q.	12½c	Nov. 15	Nov. 1
New York Transit q.	15c	Oct. 15	Sept. 25
do extra	10c	Oct. 15	Sept. 25
N. Cent. Texas pfd. q.	$1.62½	Oct. 1	Sept. 10
Pure Oil 5¼% pfd. q.	$1.25	Oct. 1	Sept. 10
do 6% pfd. q.	$1.50	Oct. 1	Sept. 10
do 8% pfd. q.	$2	Oct. 1	Sept. 10
South Penn Oil q.	25c	Sept. 30	Sept. 15
S. W. Pa. Pipe Lines q.	$1	Oct. 1	Sept. 15
S. O. Kentucky q.	40c	Sept. 30	Sept. 15
S. O. Ohio q.	62½c	Oct. 1	Sept. 15
do pfd. q.	$1.25	Oct. 15	Sept. 30
Texas Corp. q.	50c	Oct. 1	Sept. 4
Texon Oil & Land q.	25c	Sept. 30	Sept. 15
Tide Water Assoc. Oil pfd. q.	$1.50	Oct. 1	Sept. 21
Valvoline Oil pfd. q.	$2	Oct. 1	Sept. 21

Paid Last Week

Company and Period	Amount	Date Paid
S. O. Nebraska q.	50c	Sept. 21

NEW PATENTS

Prepared by R. E. Burnham, patent and trade-mark attorney, 1343 H Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 20c each. State number of patent and name of inventor when ordering.

August 18, 1931

MISCELLANEOUS

Liquid-dispensing apparatus—Harry F. Jackson and Charles O. Straub, Springfield, Ohio. Filed Mar. 3, 1928. No. 1,819,330.

Floating roof—Otterbein A. Bailey, Chicago, Ill., assignor to Chicago Bridge & Iron Co. Filed Dec. 22, 1928. No. 1,819,401.

August 25, 1931

REFINING

Process for converting hydrocarbons—Carbon P. Dubbs, Chicago, Ill., assignor to Universal Oil Products Co., same place. Filed June 20, 1918. No. 1,820,057.

Process and apparatus for treating oils.—Carbon P. Dubbs, Chicago, Ill., assignor to Universal Oil Products Co., same place. Filed June 27, 1921. No. 1,820,125.

Process of treating crude petroleum.—Harry T. Bennett, Tulsa, Okla. Filed July 22, 1926. No. 1,820,295.

Purifying system for dry-cleaning solutions.—Jerome Wiesman, Denver, Colo. Filed Aug. 22, 1928. No. 1,820,334.

Process of producing gasoline from high-boiling hydrocarbon oils.—John C. Black, Los Angeles, and Marvin L. Chappell, Watson, Calif. Filed Oct. 31, 1927. No. 1,820,371.

Process of treating hydrocarbon oils with metallic halides.—Richard W. Hanna, Piedmont, Calif., assignor to Standard Oil Co. of California. Filed Nov. 27, 1926. No. 1,820,389.

Process of and apparatus for distilling oil.—Henry W. Lyons, Dover, N. J., assignor to Doherty Research Co., New York, N. Y. Filed Apr. 17, 1923. No. 1,820,573.

Process of separating wax from mineral oils.—Harry T. Bennett, Tulsa, Okla., assignor to Atlantic Refining Co. Filed Jan. 9, 1930. No. 1,820,645.

Dephlegmating apparatus for distilling plants.—Francis M. Hess, Chicago, Ill. Filed June 7, 1922. No. 1,820,741.

Apparatus for refining used oil.—Franklin O. Krieger, Kansas City, Mo., assignor to Refinoil Mfg. Co., same place. Filed Oct. 24, 1927. No. 1,820,871.

PRODUCTION

Crooked hole indicator.—Lewis A. McLain, Wichita, Kans. Filed Aug. 31, 1929. No. 1,820,082.

Drill-cutter mounting.—John R. Dallerup, Houston, Tex., assignor to Reed Roller Bit Co., same place. Filed Jan. 19, 1929. No. 1,820,379.

Casing-slip.—Frederick J. O'Brien, Titusville, Pa., assignor to Struthers Wells-Titusville Corporation, same place. Filed Jan. 28, 1930. No. 1,820,479.

Earth-boring tool.—Burton Van Patten, Brea, Calif. Filed Aug. 15, 1927. No. 1,820,511.

Top casing and derrick construction.—Dallas D. Wertzberger, Tulsa, Okla. Filed June 2, 1928. No. 1,820,519.

Casing-tong.—Nelson K. Smith Los Angeles, Calif., assignor to Byron Jackson Co., West Berkeley Calif. Filed Sept. 27, 1927. No. 1,820,545.

MISCELLANEOUS

Computing gasoline gauge.—Leighton H. Kirkpatrick, Walsenburg, Colo. Filed Aug. 5, 1929. No. 1,820,025.

September 1, 1931

REFINING

Method of separating bitumen from bituminous sands and similar bituminous materials—Carl T. Langford and Abraham J. Teplitz, Ponca City, Okla., assignors to Continental Oil Co., same place. Filed Apr. 29, 1927. No. 1,820,917.

Process for manufacturing lubricating oil—Edgar M. Clark, New York, N. Y., assignor to Standard Oil Development Co. Filed Jan. 22, 1927. No. 1,820,963.

Apparatus for treating hydrocarbon vapors—Willis F. Sims and Venus U. Cloer, Wichita Falls, Tex., assignors to Panhandle Refining Co., same place. Filed May 27, 1929. No. 1,821,116.

Apparatus for treating emulsified oil—Frank C. Baker, Roger J. Fleckenstein, and Lester M. Ladman, Fort Worth, Tex., assignors to Texas Pacific Coal & Oil Co., same place. Filed Nov. 16, 1927. No. 1,821,133.

Distillation process—John V. E. Dickson, Woodcliff-on-Hudson, N. J., assignor to Barrett Co. Filed Feb. 13, 1923. No. 1,821,144.

Method and apparatus for heating and mingling fluids—Charles P. Tolman, Kew Gardens, N. Y., assignor to Petroleum Conversion Corporation, New York,, N. Y. Filed Jan. 3, 1927. No. 1,821,333.

Refining apparatus—Charles H. Leach, Newton Highlands, Mass. Filed Nov. 10, 1926. No. 1,821,346.

Oil-refining apparatus—Charles H. Leach, Newton Highlands, Mass. Filed Dec. 31, 1926. No. 1,821,347.

Process and apparatus for cracking oil—Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Co., same place. Filed Dec. 6, 1920. No. 1,821,746.

Process for cracking oil—Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Co., same place. Filed Dec. 9, 1920. No. 1,821,747.

Hydrocarbon-oil conversion—Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Co., same place. Filed Dec. 7, 1925. No. 1,821,748.

Process of cracking oil—Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Co., same place. Filed Dec. 21, 1925. No. 1,821,749.

Process of cracking oil—Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Co., same place. Filed Dec. 21, 1925. No. 1,821,750.

PRODUCTION

Drilling and swabbing head—John N. Hicks, Los Angeles, and Clayton Severns, Long Beach, Calif. Filed Oct. 16, 1929. No. 1,821,096.

Pumping apparatus—Archie N. Dawley, Tonkawa, Okla. Filed Aug. 24, 1928. No. 1,821,143.

Impact bit—Paul H. Granger, Los Angeles, Calif. Filed Sept. 11, 1928. No. 1,821,212.

Rotary machine for well drilling—Edward Timbs, Los Angeles, Calif., assignor to National Supply Co., New York, N. Y. Filed May 2, 1927. No. 1,821,366.

Head device for sand pumps and bailers—Clark F. Rigby, Butler, Pa. Filed May 21, 1929. No. 1,821,479.

Crown-block-sheave assembly—Lee J. Black, Beaumont, Tex. Filed Aug. 9, 1930. No. 1,821,788.

ADVERTISERS IN THIS ISSUE

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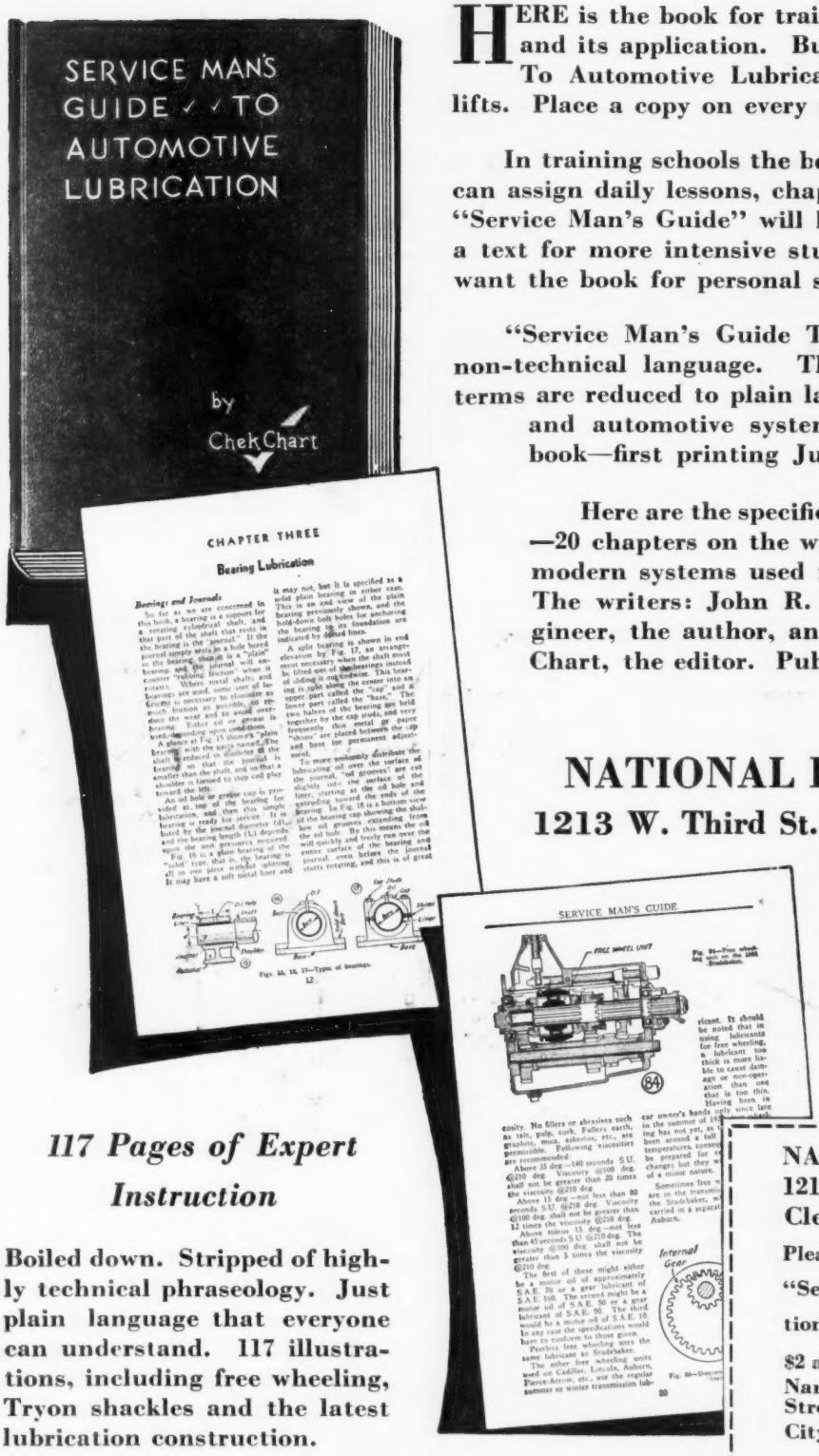

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